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Original Articles

MOSQUITOES AND MALARIA; THE PRESENT KNOWLEDGE OF THEIR RELATIONS, WITH SOME OBSERVATIONS IN ANN ARBOR AND VICINITY.*

GEORGE DOCK,
Ann Arbor.

It is hardly five years since Ross first demonstrated the true role of the mosquito in the spread of malaria. Since then, a vast amount of work has been done; much has been learned, not only about malaria, but also about mosquitoes; but we are still ignorant of many details, some of them important, and new worlds of knowledge have been discovered that call for explorers. We know that certain mosquitoes, belonging to the genus anopheles, act as hosts for the malarial parasite. Many species of the genus are known to be capable of serving as hosts, and all the known forms of malarial parasites may grow in a single species. It was thought in an early stage of the investigation that species of culex could act as hosts, but these observations are now considered erroneous. Of the other genera, psorophora has been claimed amenable by Moore, of Galveston, but Dönitz denies this. We must remember that only a few species (fourteen of culex out of over one hundred) have been examined, and a great deal of work must be done before we can be sure of the species concerned in malaria. Some idea of the magnitude of the task can be gathered from the fact that more than two hundred species of mosquito remain to be investigated. Since many of these other species are already known to be the occasional hosts of other important parasites, such as those of yellow fever and filaria, and that others may harbor still other parasites, it is obvious that the task is as inviting as it is extensive and difficult. The question whether

*Read before the Washtenaw County Medical Society, Dec. 17, 1902.

malaria is acquired in any other method than that now under consideration is not thought profitable for discussion. Observations are needed, but at present we have none that weaken the mosquito doctrine.

Grassi very early supposed that the distribution of malaria and anopheles coincided, a view that still seems to be held by some who have not followed the work since Grassi's suggestion was made. It is now known that the belief is far from true, and just as before the mosquito doctrine, so now, the only safe test for the malarial character of a locality is that of exposing human beings in it. Without such a test, we may say that if anopheles are already present, and especially in considerable numbers, malaria may be there, or if introduced, even in a latent form, it may spread. If anopheles are really absent, according to our present knowledge, malaria cannot develop or spread. To put the matter in another way, wherever malaria is endemic there are anopheles, but there may be anopheles without malaria. The mosquitoes may be imported at any time, by rail or ship especially, or they may be supposed, on the ground of imperfect search, to be absent when they are really present. So we can understand the value of accurate knowledge of the mosquito-fauna of any locality.

Coming to a more particular study of anopheles, we find that this genus, known since 1818, now includes at least 50 species. The identification of many of these is very difficult, so much so that statements as to geographic distribution, infection, etc., are of no value unless positive and based on identification by experts. The assertion so often made as to the total absence of mosquitoes in given localities has been shown over and over again to be erroneous. Still, there are places, like Barbadoes, where anopheles have not yet been found, though carefully looked for by experienced observers.

Quite recently, F. V. Theobald, of the British Museum, the greatest authority on mosquitoes, has proposed a subdivision of anopheles into eight genera, a proposal the fate of which must be followed with interest by all who try to keep abreast with current malaria literature; otherwise a well-known species, under its new name, may seem as novel as stegomyia was for culex fasciata and its congeners, when it was first introduced as a generic term.

The eggs of anopheles are laid in water, usually not entirely stagnant, but protected from strong currents by grass or weeds, or in backwater or small bays. They may be laid and develop in standing water, as in holes in rocks, in tubs, cisterns or casual vessels like tin cans, if these are rained upon at times, or in fountains if playing. In about two days the larvæ are formed, and after about three weeks, during which many larvæ die, they grow into pupa, and in two to four days more, flies or full-grown mosquitoes. The length of the aquatic stage is about thirty days, but may be much less in warm weather. Cold weather inhibits the development, but does not kill the eggs, but different species perhaps vary much in respect to cold. Culex larvæ have been hatched out of water melted from ice in which they were frozen. Larvæ may hibernate beneath the ice in rivers. Drying usually kills eggs and larvæ, though if the drying is not complete, life may be preserved, or if the pupal stage is reached these may mature and flies form. When first developed, males and females are about equal in number, but the males seem not to live as long as the females and in natural conditions are

much less numerous. They do not seem to hibernate. Mosquitoes of both sexes live on vegetable juices, the male wholly so, though under unusual circumstances males may suck blood. The females suck blood, and this is a very important part of their life history, both for the insect and for the victims. The blood seems to be important, perhaps even essential to the preservation of the species, and during ovulation it seems necessary for the insect to suck blood about every two days, or about as often as eggs are deposited. Eggs may be laid without this, but though some observers hold the eggs so laid are viable, others believe that only on blood diet can perfect eggs be laid. Observation makes it certain the mosquito does not not suck blood for food alone. Among anopheles, especially, it does not always fill itself with blood and fly away. Many observers have noticed that the sucking insect often first ejects feces and intestinal juice, and then blood once or many times, before filling up and leaving her victim. The relation between blood-sucking and fertilization is not peculiar to mosquitoes, but has been noticed in certain ticks, who live abstemiously before fertilization, but after that bite voraciously. The eggs are laid every few days, to the number of one to two hundred each time. Ficalbi has estimated that in one season, in Italy, one female mosquito will give rise to four generations, aggregating 200 millions of young ones. Kerschbaumer estimates that in Austria, also with four generations, the descendants number 31 millions. The idea that mosquitoes, including anopheles, bite only at night, or when the sun is low, is repeated with remarkable frequency, considering that it has often been denied and can easily be tested. They fly most at nightfall, and bite most then, but they are likely to bite at any time, especially in the shade. I have often seen anopheles maculipennis bite in daytime in a shaded but light room in Ann Arbor, and have seen anopheles punctipennis bite savagely on the porch of the Country Club House in the middle of the afternoon. The insect bites most frequently and most persistently in hot weather. The female anopheles, as intimated above, does not die after biting and depositing eggs. She repeats both operations at intervals of a few days. How long the individual flies can live is difficult to say. In captivity they have been kept alive for fifteen days (in warm weather; in winter very much longer; Bancroft kept a species of culex alive five months). When it was thought that certain species of mosquito always carried malarial parasites, it was necessary to suppose the parasites were also able to live somewhere else than in the mosquito and the human body. Other warm or cold-blooded animals, plants and the soil, were all considered possible. This idea is abandoned almost entirely, because it is not necessary with our present knowledge. All the facts known are against the theory, but it is too early to consider it wholly erroneous.

The mosquito becomes infected by sucking the blood of a human being with malaria in certain stages of the development of the parasites. These stages do not belong to the essential part of the human or asexual cycle of the animal's life, though they are often found in blood recently drawn in cases of malaria. What determines their formation we cannot tell. We know that the sexual forms of the remittent fevers, the crescents, grow in the human being without apparent reference to the other cycle, being present sometimes long after the essentially path-

ogenic phases disappear. In quartan and tertian fevers the sexual forms are not so easy to follow up in the blood, and their life history is still partly unknown. We may assume that in some cases the blood contains no sexual forms, but if these are in the blood the sucking mosquito is likely to get some, as it takes up to 2 mg. of blood, an amount equal to its own weight. A malarial subject may have as many as 300 parasites per cmm, without symptoms, one with symptoms many thousands, so that the chances of obtaining parasites are good in many cases. Ruge has recently (Centralblatt für Bakt., etc., XXXII. Bd. Originale. No. 11, 1902) made a most interesting attempt at counting the sexual forms in the blood of fever patients, and in that way estimating the chances of infection. The work, however, is of such difficulty that much more must be done before we can draw useful conclusions. In the meantime we have a good deal of experimental evidence showing that not all females, even of amenable species, can be infected, the proportion varying widely, even in insects that sucked repeatedly from infected persons.

The mechanism of sucking deserves a brief consideration, as well as the anatomy of the proboscis. This latter is a very complex organ, made up of seven distinct pieces. Four of them, the mandibles and the first pair of maxillae, are piercing instruments. When in action the six upper pieces form a tube, through which the blood (or in other cases vegetable juice) is drawn up by the suctorial pharynx. Before this, however, the saliva is ejected through the hypopharynx, one of the parts of the proboscis, which contains a tube of extreme minuteness, continuous with the duct of the salivary gland. So the saliva and the blood do not come in contact in the proboscis, and the difficulty that some have in understanding how the insect can inject its saliva while sucking blood is based on ignorance of the real conditions. In fact, mosquitoes often inject saliva without drawing blood, sometimes making several such punctures without sucking. The primary function of the saliva has been much discussed, but cannot yet be satisfactorily explained. It would seem intended not so much to prevent coagulation of the blood as for causing a better flow by bringing on local swelling, such as takes place in many persons when bitten.

The sexual forms of the parasites take on their functions immediately on entering the so-called stomach (the mid-intestine) of the mosquito. According to Ross, whose description I am now following, the male element or male "gametocyte," after breaking through its enclosing corpuscle, throws out the well-known flagella, now called "microgametes," the spermatozoal nature of which was first demonstrated by MacCallum.

The female gametocyte forms an ovum or "macrogamete." Breaking away from the parent cell, the flagella, to use the more familiar term, travel through the liquor sanguinis in the stomach of the mosquito in search of a macrogamete. Finding one, the microgamete enters the cell and unites with its nucleus. This union produces what is known as the "zygote," which now becomes motile and travels towards the wall of the stomach. If the mosquito belongs to a species inhospitable to the parasite, the zygote dies; if the reverse, the zygote penetrates the wall and fastens itself on or just under the outer muscular coat, where it becomes motionless and grows rapidly in

size. The number of zygotes varies from a few to a hundred or more. After about a week it may become as much as 60 micromillimeter in diameter, or about eight times its original diameter. A capsule forms, and the interior divides into eight to twelve "meres." Each "mere" finally becomes a spherical "blastophore," bearing on its surface many spindle-shaped or filamentous "blasts," and finally, as the zygote reaches maturity, the blastophores disappear, leaving the capsule packed with thousands of blasts. The capsule bursts and the blasts lie in the body cavity. Dried and stained, the blasts are 12 to 16 micromillimeter long, with a central nucleus and tapering ends. They are motionless in reagents such as salt solution, but can hardly be so in their natural surroundings, for they soon reach all parts of the host, pierce the capsule of the salivary glands, enter the salivary cells, and finally the duct. From there they pass through the middle stylet, tongue, or hypopharynx, into the tissues and blood of the host bitten by the mosquito, and, entering red blood corpuscles, begin the asexual cycle. It is hardly possible mosquitoes can cause infection by direct transfer of blood from person to person. Numerous experiments with hypodermic needles, from the time of Gerhardt's early successful experiment, show that this is possible with even small quantities of blood, but the amount that might adhere to the mosquito's proboscis seems too small. All the steps of these complicated operations have been actually seen and preparations of all stages have been widely demonstrated. A beautiful demonstration was made by Manson at the meeting of the British Medical Association in 1901, which the writer was fortunate enough to see.

As remarked above, not every individual among amenable species can be readily infected experimentally, the failures being probably due, according to Ross, to peculiarities in the steps of the experiment or of fertilization. An infected mosquito can infect only a limited number of people. Besides warm-blooded animals, mosquitoes suck the blood of others, such as turtles, fish, the chrysalides of butterflies, small diptera, cicada and its pupa, etc. These habits may be of great epidemiologic importance, for if there are as yet unknown stages of the malarial parasite, they may live in such animals. It is pretty well established that the malarial parasites are not transmitted to the eggs, as was supposed at one time.

At present one can only speculate as to the primary origin of the parasites in man and mosquitoes. Sambon suggests that these are specialized parasites like pediculus capitis, taenia saginata, etc. Though they must have originated in other forms, those now found in man probably developed, according to the same author, from earlier species already parasitic in other hosts, such as birds and bats, that nest under our roofs; and the parasites have been transmitted to man by the mosquitoes that, like the cockroach and housefly, have associated themselves with man. The disappearance of malaria from certain localities where mosquitoes and other factors seem favorable, might be connected, as Sambon says, with the extinction of some animal or plant that may have been a necessary link in the life history. Theobald suggests that the disappearance of ague from England may have been due to the fact that anopheles maculipennis has lost the habit of blood-sucking. But, aside from the question as to the complete loss of that habit, the

disappearance of the disease in many other localities, as notably in Michigan, where anopheles maculipennis still sucks blood and where it is hardly possible the other factors have been eliminated, is more likely to be due to the former widespread use of quinine, as Christopher has suggested for other places

An important factor in the mosquito stage of the parasite's growth is temperature. The cycle goes on best at about 25°-30°C. and is then about fourteen days in duration. It can go on at an average temperature of 18°C. or with variations between 10°C. and 25°C. With the lower temperature the development is slower. The reappearance of spring infections—not relapses—can be explained by the revival of hybernating mosquitoes in the warm days, for the seasonal occurrence makes it unlikely such attacks are due to insects warmed sufficiently in houses. Still, the latter possibility can hardly be denied.

With this introduction, my observations on mosquitoes will doubtless seem less irrelevant than otherwise. I have for years made desultory notes on the insects here, but the rarity of malaria and the relative scarcity of mosquitoes prevented me from making systematic observations. When the soldiers returned from the South in 1898, with the possibility of setting up new foci of infection, I paid more attention to the matter. I found that anopheles maculipennis (often called a. claviger, or a. quadrimaculatus) could be found in scanty numbers in houses all the year round. This is one of the commonest mosquitoes of Europe and America, and the one on which Grassi, Bignami and Bastianelli made their convincing observations on the life-cycle of the malarial parasite. In the fall of 1901 Dr. Cowie and I found these, sometimes with culex, in five houses occupied by malarial patients, observed and reported (but not published) by Dr. N. A. Gates, of Dexter. In this small epidemic the source could not be found. Much work had been done on the railroad, in the vicinity, but we could not determine as to malaria in the construction gang. Our visit was made after a very cold change in the weather and we found no larvæ near the railroad, along the river, or around the houses, and no mosquitoes in the well-screened boarding cars.

The summer of 1902, as you are all aware, was remarkable no less for its weather than for the unusual development of mosquitoes. Even in the closely built up parts of the city the insects were so numerous as to make an evening out of doors a most painful experience. Much building, the tearing up of streets and changing of grades, with unusually frequent rains, formed innumerable breeding places for the pests. I spent a great deal of time, from the opening of spring, searching the most promising places for larvæ, but it was not until warm weather that these were numerous. This was doubtless due to the fact that the previous season was not a good one for mosquitoes; next spring should be much more favorable for finding larvæ, immediately after the ice melts.

The places examined most carefully were the shores of the Huron river from Foster's to Geddes, but getting as far on both sides of town as Dexter on the west (9 miles) and Ypsilanti on the east (8 miles); the valleys and ravines running back from the river valley; the banks, low places and swamps along Allen's Creek as it runs through the city; and various depressions where water stood

more or less all summer. I also examined many houses and yards in various parts of the city and vicinity in various directions. By carrying a killing bottle, some small vials and pill-boxes and a lens, I was always ready for the flies. On the search for larvæ I added a white dipper to my outfit.

Culex larvæ were found in almost every place where water stood, as in the ditches along certain streets, in low places everywhere, and often in the backwater of running streams. In general, anopheles larvæ do not grow in company with culex, being devoured by the latter, but with food in plenty, as it was in many places I examined, the two often live together. In the vicinity of larvæ breeding places culex flies were numerous, especially about sundown. I made no attempt at counting, or even capturing these, except in each place to get a few for determination of the species. In all cases this was c. fatigans (or pungens), the commonest of all mosquitoes. They could easily be caught even in midday, by sitting in the shade. In a few minutes the flies would settle and were often so tame the palps and wings could be examined with a lens.

For a long time after the plague began I found no anopheles. On August 2 I found the first, a female anopheles punctipennis, on the porch of the Washtenaw Country Club House, about 6 p. m. Next day I found two more of the same species in the same place. I had frequently examined the house, barn and woods for flies, and the brook for larvæ of this genus, without result. The brook is probably too swift in most parts, and too often disturbed in others, for the larvæ. After they began to appear, one or two specimens could nearly always be found, but the great majority of mosquitoes found in the grounds of the Country Club were culex. I found that these settled in enormous numbers on the sheep grazing on the field. They did not seem to bite the animals in the daytime, nor would they readily leave the sheep to settle on people close to them. Perhaps the warmth of the animals' bodies attracted the flies. As in former years, anopheles, both maculipennis and punctipennis, appeared in my house from time to time this summer, the last one being seen in the middle of November. I found them only inside the house, usually in the same room. a dark one without water, but next to the kitchen, to which they had easy access, especially at night and in the early morning. The house is screened, but the doors are often left open and the insects could readily enter. Owing to the exposed situation of the house, at the end of a bluff, mosquitoes were not as numerous as about more sheltered houses, but in the worst part of the season culex flies could be found around the house, as around all the neighboring ones. I was never able to discover the breeding places of the anopheles, but cannot help thinking they were on the hill on the north side of the bluff, among small marshy holes and highgrass, where larvæ are hard to capture even if present.

In July and August a good many anopheles, mostly punctipennis, were found in the Zoological Laboratory, as I was shown by Professor H. B. Ward. Other places that I examined were free, but Professor Bigelow found in his house, on November 22, a female punctipennis and a male culex.

On account of the interesting finding of culex larvæ frozen in pitcher plants by Brakeley and Smith, of New Jersey, I examined many leaves of these plants

growing about one of the small lakes west of town, but could never find larvæ, eggs or other mosquito parts in the leaves. On December 7, 1902, I collected eight large leaves with ice in them. On melting the ice, I got many insects, mostly small beetles, whole and in part, but no larvæ, and none hatched out in a warm room in which the water was kept and partly changed for several days.

I take pleasure in expressing here my thanks to Dr. L. O. Howard, of Washington, who kindly confirmed my diagnosis of the species maculipennis and punctipennis. Without such authoritative determination I should not have felt justified in making this report.

Since anopheles exist in this locality and suck human blood, malaria can develop. In order to form an idea of the degree of danger, we must consider not only the existence of the proper kind of mosquitoes, but also their number and the possibility of obtaining parasites from human carriers. With reference to number, there is comparatively little recorded in exact figures in other places. With the greatest persistence I could rarely find half a dozen anopheles in a single expedition. Grassi, in a carriage ride of two hours in a malarial part of Italy, captured two hundred. In a malarial locality on the Susquehanna river, Bashore found that from 25 to 74 per cent of mosquitoes were anopheles, during the malarial season. After frost, with little intermittent fever, he found 16 per cent. From such comparisons it is clear that malarial carriers are relatively few here. This goes far to explain why it is that the soldiers returning from Cuba or the South, as well as occasional students with latent or active malaria, are not more dangerous as foci of disease.

My observations on malaria in Ann Arbor have been on relapses in imported cases, with one exception. After 1898 I made special efforts to hear of cases developing here and in other parts of Michigan, but so far have not heard of definite cases. Some of my correspondents have not yet answered, however, and if any one has such observations, they would seem well worth publishing. The only case of local malaria known to me is the following: E. H., 18 years, was admitted to the hospital August 27, 1901, for gonorrheal arthritis (shoulder and knee). The blood examination showed 4,900,000 red corpuscles, 9,676 leucocytes, and hemoglobin 75-80. No special examination was made for malarial parasites, as the malarial history was not considered at that time. Sept. 20, after the patient had been in bed for 24 days, he had a chill at 2:30 p. m. Before the chill, the temperature, which had ranged about 98.4° to 100° or 101° for three weeks, rose to 102°+. After the chill it reached 104.4° and then fell to normal at 5 a. m. next day with slight sweating in the decline. Tertian parasites were found in blood examined during the chill, in a single generation. A few parasites were found the next morning but these disappeared. No medicine was given for the paroxysm. The temperature ran between 98° and 99.5° until September 27, at 8 a. m., when it was 1° higher than at any time since the chill. At 11 segmenting parasites were found in the blood. At 12 the temperature reached 101.1° and then fell. No parasites were found after this.

The patient had lived in N. Main street near the mill-dam for three years; before that four miles northeast of town. He first had ague in 1900, while working in a printing office. He had not been in the

country or on the river. There were five tertian paroxysms with a relapse two or three weeks later. In July, 1900, he had a chill, and then no more until the one observed in the hospital. He said there had been mosquitoes in his house, but Dr. Cowie, on examining the house after the chill was noted, found none. The four other people in the house had not had malaria, and the patient did not know of exposure to another case.

The history is interesting and instructive in other ways than as proving a genuine antochthonous malaria. The short duration of the paroxysms is unusual for the time of year. The chief importance of the case in a clinical way is the emphasis it throws on the need of blood examinations in all possible cases of malaria, even in unlikely localities. With the gonorrheal history, and the repeated punctures made into the patient's joints, one might have suspected a septic paroxysm. A very brief examination showed a different cause.

In this connection a recent case simulating malaria is interesting. A few of these come under my observation every year. In the latest case, the patient had a continued fever of short duration, ending by lysis. It seemed possibly typhoid. On the second day after the temperature reached normal it rose again with a chill to 103.4°, and on the following days to 104.6°, 105.6°, 106.8°. The chill was severe, the rise of temperature rapid, the fall also rapid, to 98° or below. After nine days in the way described, the temperature followed a remittent course for a few days, but again became intermittent, and several times reached 107°. The single paroxysms closely simulated malarial attacks, but the time of acme varied rather more than in malaria, those of the first four days being respectively 9 a. m., 3 p. m., 2 p. m., 7 p. m.; the chills 6 a. m., 2 p. m., 10 a. m., and 4 p. m. There was no obvious septic focus, but there was an old heart lesion, and this, with the peculiarities of the course, and a leucocytosis of 35,000, suggested sepsis as more likely than malaria. Examination of the blood showed an absence of parasites, and along with the leucocytosis, led to an early diagnosis of sepsis. The fatal end was therefore not as unexpected as it would have been under the alternative diagnosis.

A CASE OF ABSENCE OF THE RECTUM.

W. P. MANTON,
Detroit.

Cases of arrested development of the lower portion of the bowel are of such infrequent occurrence that the following instance is interesting from an embryological and surgical point of view:

THE DEVELOPMENT.

By the fifteenth day of embryonal life the caudal extremity of the arch enteron, or primitive intestine, becomes dilated as a blind pouch, into which the proximal end of the allantoise, or future bladder, opens. This cloacal chamber is, therefore, at first, the common receptacle for the excrementa from both bowels and kidneys. (Fig. 1.) Toward the end of the fifth week, as the result of the invagination and rupture of the external layer of cells (ectoderm), together with perforation of the cell-layers of the contiguous portion of the cloaca (entoderm), an opening, the proctodaeum or primitive anus, is formed. Coincident with, or possibly slightly before these changes have taken place, the tissues be-

tween the bowel and the allantoise grow backward and divide the cloacal space into two parts, the anterior tube representing

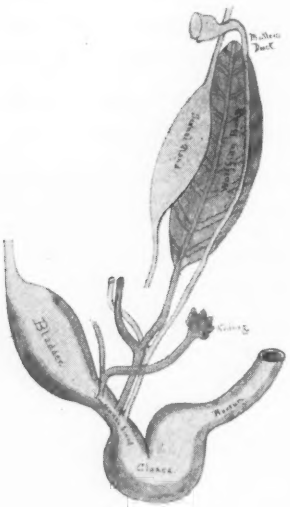

FIG. 1.

the uro-genital sinus or, in the male, the future prostatic and membraneous urethra, while the posterior tube becomes the rectum. It is evident that arrest of development in any of these parts either failure in formation of the proctodaeal opening or of the partitioning of the cloacal space, will result in defects of most serious consequence to the child in its cerrene existence.

THE CASE.

M. M. C., male, was born in the Emergency Department, Womans Hospital and Infants Home, October 21, 1901. He was a vigorous, well-nourished and developed child, weighed 8¾ pounds, and was without spot or blemish save for the nonexistence of an anal opening, the median raphe being devoid of pit or pucker. On the day following birth an attempt was made to reach the bowel by a dissection through the anal region, but this proving unsuccessful I did a left inguinal colotomy.

On Oct. 23, the child having up to this time excreted no urine, a catheter was introduced through the penile urethra and upward for 6 inches into what was then supposed to be a dilated ureter. No urine was obtained, but five hours later the napkin was found wet and urine was thereafter passed through the natural channel. The secretion was often high colored and contained much uric acid. As the result of the unremitting care and watchfulness of the senior house physician, Dr. Mitchell*, the child lived and for a time appeared to thrive, but later, in spite of the ingestion of considerable quantities of breast milk, it gradually lost in weight and by the end of the first week had dropped to seven pounds. The bowels continued to move naturally through the artificial anus until December 15, when fecal matter began to be passed through the urethra. As the amount of alvine discharge through this canal was consider-

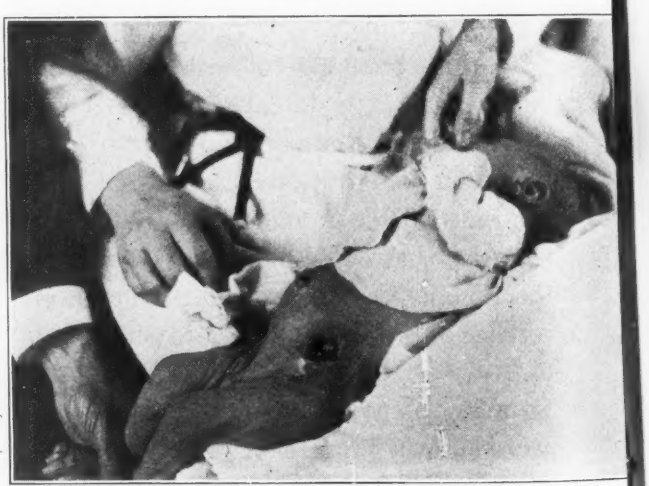

FIG. 2.

able, the abdomen was again opened, at this time with the hope that the connection between bowel and bladder or urethra might be discovered, and the defect rem-

*I am indebted to Dr. Mitchell for careful notes of the case.

edied. On account of the smallness of the pelvis, however, nothing was found, and in order to prevent the contents of the bowel from further entering the urinary passages, the colon was divided below the artificial anus and the open ends of the mally formed. In all probability the proctodaeum had been imperfectly formed during the fifth week of life, the cloaca had been partially divided by a septum, giving rise to a portion of the urethra, and then the recto-anal opening, having again

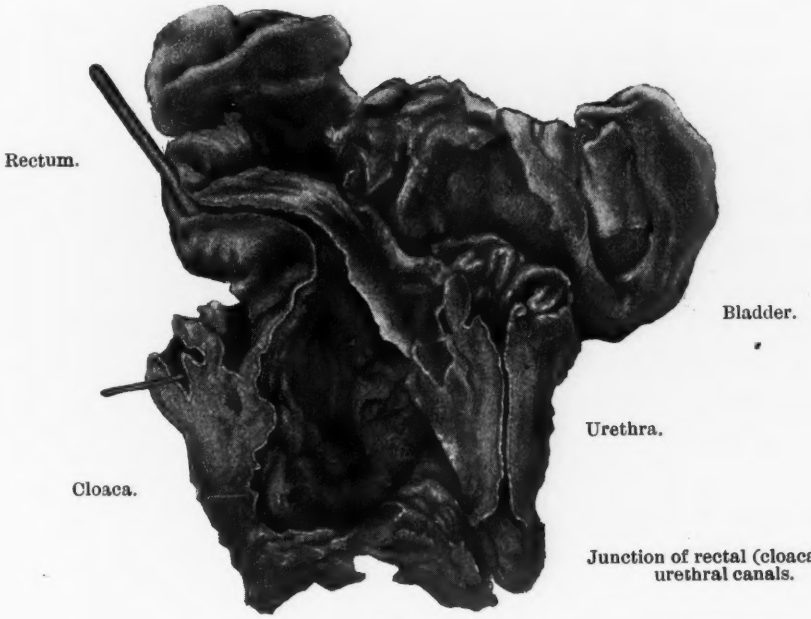

FIG. 2.

cut bowel carefully closed with fine silk. Evacuations continued through the inguinal opening and clear urine was passed by the urethra, but the child gradually weakened and died December 20, five days after operation.

THE POST-MORTEM CONDITION.

The autopsy, made by Dr. P. M. Hickey, revealed little beyond a moderate peritonitis with exudate gluing the intestines. On opening the lower, resected portion of the rectum and the bladder, it was found that the intestine had remained in the same condition as it was during the second week of development, that is, the cloacal pouch was still embryonal in character, and received the abdominal end of the bladder (allantoise), the external portion of the urethra having been nor- closed, all indications of its presence had become obliterated.

It is obvious from the conditions present that no surgical operation could have remedied the congenital defect, and that the child must have soon succumbed to infection of the bladder and kidneys had the attempted relief been omitted.

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MALNUTRITION IN INFANTS.

CHAS. DOUGLAS,
Detroit.

Gould, in his large dictionary, defines the word "Malnutrition" as "imperfect nutrition or sustenance, due to imperfect assimilation of food." If Dr. Gould were

a pediatritian rather than an oculist, he would have enlarged this definition to include cases of improper feeding—those whose food does not contain the proper elements of nutrition, or those elements in proper proportion for perfect digestion, and consequently the child must be improperly nourished. In the practice of the regular physician, this latter condition is the one with which he has to contend most frequently. The result in either condition is that the infant is pale, small and delicate, and likely to die from digestive disturbances during the summer months, or, if surviving the summer, with some epidemic disease.

Most infants, when born, are supplied with sufficient digestive glands to digest or assimilate, or turn into healthy tissues, all foods supplied by healthy human milk. We say *healthy* human milk, because much of this secretion is not in such proper proportion as to secure perfect digestion and consequent healthy tissue formation. Without such healthy tissue formation in proper quantity, the result must be a child deficient in size, color and consistence—in other words, a mal-nourished one.

Human milk is a composite substance made up of five elements, as follows. In one hundred parts, there are:

Fat—4 parts.
Sugar—7 parts.
Proteid—1½ parts.
Mineral salts—0.28 parts.
Water—about 87½ parts.

As the first three items are food elements, they are the only ones for which nature has to provide secretions with which to digest them, thereby converting these items into heat units for the warmth of the infant, and also into all living tissues required in the development and growth of the child.

To perform these two separate functions, the digestive fluid must be a complex substance made or secreted from the blood, by innumerable glands placed, or opening, in the mucous membrane of the mouth, stomach and bowels. It is apparent and also proven, that these glands, placed in different positions and also made of different structures, do not secrete the same chemical fluids, but on the contrary, each set secretes a fluid capable of digesting only a particular element in the food. The amount of each secretion is governed by the number of glands devoted to such secretion, and these secretions of the different glands are not interchangeable. Thus the glands capable of digesting proteid, cannot digest sugar or fat; and those devoted to the digestion of sugar or fat cannot digest proteid. The same law follows all through the digestive tract, so that where the proportions in the elements of the food are not properly adjusted to the capacity of the different sets of digestive glands, fermentation with uncomfortable and imperfect digestive results are sure to follow, causing vomiting, colic, or diarrhea; and in time a pale, illy-nourished child, deficient in size, health and strength. Under these conditions, malnutrition is unavoidable.

Nature is very elastic and accommodating in her plans, and has so constructed the digestive canal that ordinary temporary errors in dietary are overcome by the extraordinary efforts of the particular glands called upon then to correct these errors. This is continually seen where too rapid advances are made in feeding any one element in the food. The glands imposed upon will be stimulated to extra effort and they will continue to draw ex-

tra blood to supply their demands until such time as this extra rush of blood becomes so great as to equal an inflammatory action, and the result is a gastritis, duodenitis or general enteritis according to the particular element which has been unduly increased.

During the time this error is being reached, the child will grow in weight unusually fast, if the other elements in the food are not deficient in quantity; but all this increased weight is lost in the above inflammatory explosion which cuts off all nourishment for a time. In most cases, excessive amount of one element in the food is accompanied by a decrease in the other elements and the result is unused digestive fluid and a corresponding loss in the tissues or heat which these deficient elements should supply. Either form of error results in an imperfectly balanced child—known as a case of "malnutrition."

It is evident that a proper adjustment of the food elements to the digestive power of the different glands is the only rational and successful way of avoiding these inflammatory errors above cited. These errors of "malnutrition" occur mostly in infants during the first year; many also occur in the varied dietary of the second year; and a few appear in the puny, small, pale children over two years old.

While it may be, and is at times, difficult to read correctly the errors committed in feeding a varied dietary to infants after weaning, there should be much less difficulty in reading the errors committed during the first year while the infant is nursing or being hand fed. This, of course, is due to the simpler diet needed for the infant's growth, heat and development during the first year.

In order to obtain a simple mathematical view of this subject, let us look at the nursing situation of the ordinary healthy infant at three periods:

1. At three months.
2. At six months.
3. At nine months.

As we have seen above, human milk contains only three food elements, fat, sugar and proteid, the rest being mineral salts and water, which are not changed by digestion, but enter into the formation of the infant in their natural conditions.

These three food elements make just one-eighth of the bulk of human milk, or 12½ parts in the hundred. An average infant, three months old, nurses about thirty ounces of milk daily. One-eighth of this is 3¾ ounces—the actual amount of food in the milk consumed each day. Three and three-fourths ounces equals 1800 grains. From this we see that a three-months-old nursing infant consumes at each meal, when nursed at three-hour intervals, in nutritional elements of—

Fat—72 grains.
Sugar—126 grains.
Proteid—27 grains.

A six-months-old child consumes 36 ounces of mother's milk. One-eighth of this is 4½ ounces, the actual amount of food consumed each day. This amount of food in meals would show this child receiving every three hours in nutritional elements of—

Fat—87 grains.
Sugar—150 grains.
Proteid—33 grains.

An infant nine months old consumes about 42 ounces of mother's milk daily, representing 5¼ ounces of food. This amount in four-hour feedings would

show this child receiving in nutritional elements—

Fat—132 grains.
Sugar—236 grains.
Proteid—52 grains.

As the infant advances in age over three months, we find more glandular secretions added to the digestive fluid. This is evidenced generally by drooling when the salivary glands commence secreting that first element needed in the digestion of starchy foods of all kinds.

Careful feeding of properly prepared starchy foods from this date, three months, onward, shows by the stools how much of starch digestion nature provides for as the child grows older. A careful watching of these stool results will always guide the mother in increasing the food. A steady increase in these three elements, fat, sugar, and proteid, during the first three months, with starch gradually added to their number after this age is reached, should secure perfect development and an avoidance of those errors in nutrition which are always foretold by the odor, color, and consistence of the stools. Such errors, when continued long, are sure to end in more or less pronounced "malnutrition."

Having followed out Nature's plan, and thus seen her work in healthy nursing infants, let us look for a few moments at the contrasting work when the mother is unable to nurse her infant, and she is compelled to feed it. The only practical substitute we have for human milk is the milk of the cow. In it and in wheat, or any cereal, are contained all the elements of food with which we are supplied and all that nature has provided digestion for. True it is, that there are many varieties of these different elements in the eggs, meat, fish, fruits, roots and cereals that we consume daily, but they are all represented by the three elements above named.

For the sake of comparison, we will feed cow's milk pure and see the difference in the amounts of these original elements the child is receiving. The thirty ounces of milk consumed by the three-months infant shows at each meal:

In human milk—
(Butter) Fat—72 grains.
Sugar—126 grains.
Cheese or proteid—27 grains.

In cow's milk—
(Butter) Fat—72 grains.
Sugar—72 grains.
Cheese or proteid 72 grains.

The six-months-old child consumes at each meal:

In human milk—
(Butter) Fat—87 grains.
Sugar—180 grains.
Cheese or proteid—33 grains.

In cow's milk—
(Butter) Fat—87 grains.
Sugar—87 grains.
Cheese or proteid—87 grains.

The nine-months-old child consumes at each meal:

In human milk—
(Butter) Fat—132 grains.
Sugar—236 grains.
Cheese proteid—52 grains.

In cow's milk—
(Butter) Fat—132 grains.
Sugar—132 grains.
Cheese proteid—132 grains.

As the original elements in human milk are in fixed proportions and the digestive glands are developed in like proportion to properly digest these human

elements, it will readily be seen where a digestive disturbance and consequent malnutrition must inevitably result from such a violation of the amounts of these elements in the food as is shown by the above figures in cow's milk. The same inequality must occur in feeding all proprietary foods, as they cannot conform to the elements or proportions in human milk.

Experience shows, and physiology teaches, that each element in the food has a fixed function to perform in building up the body and maintaining its vigor; and also that these duties or functions are not interchangeable. How then can we expect any other than bad results when we see the young infant, a few days old, fed rolled crackers, boiled bread, fresh butter, and proprietary foods, that carry little if any of the elements that nature has deemed necessary to put in human milk, and only for the digestion of which elements she has provided glandular secretions.

The first effect of a sudden change in these proportions is to have fermentation or decomposition occur in the stomach or bowels, with its consequent gastro-enteritis and accompanying febrile symptoms. This usually comes to the attention of the physician and is quickly corrected; but the gradual and continued disproportion in the food elements, which is characterized by crossness, disturbed sleep, foul stools, gassy discharges, bad breath, variable appetite, distended abdomen, and pale countenance, is a type for which the parents too frequently do not see any necessity for medical advice. These are the cases that travel onward, gradually changing and congesting all the digestive organs until they do imperfect work and thus turn into the blood current poisonous food products instead of healthy aliment.

These poisonous food products, or ptomaines, continually, while circulating, cause an irritation and disturbance of all brain, nerve and muscular tissues, rather than a proper nutrition of them; and also cause irritation and congestion of the kidneys through the extraordinary labor imposed on them in their elimination of these poisonous products from the body.

It will readily be seen why those children suffering from malnutrition, marasmus, rickets, and scorbutus are more liable to suffer from convulsions in the slight febrile disturbances of childhood, than are those children whose brain and nerve tissues have been regularly and properly nourished from birth onward.

In the treatment of these cases a correct realization of what element or elements has been deficient or in excess, in the food supply, will be found a necessity, as all tissues in the body are not made from the same elements. This is particularly evident in the unbalanced nervous organization of children fed on a dietary deficient in fat, and the extreme vigor and strength of infants who can digest and appropriate a large amount of proteid. The former are liable to convulsive seizures from slight febrile disturbances. The latter may be strong and active but at the same time suffer continually from digestive disturbances and eczematous eruptions, until the proteids in the food are reduced to a proper proportion for perfect digestion. These are only a few of the many inequalities, irregularities, and pathological disturbances resulting from an unbalanced ratio between the elements of food supplied daily and the amount of the different digestive fluids secreted by the alimentary glands.

Without such careful adjustment of the elements in the food, it is impossible to obtain that healthy color, odor and consistence of stool which is an absolute assurance of perfect nutrition and consequent good health.

To correct these disturbances of nutrition by medication alone, is only removing the resulting mistakes temporarily. It cannot in any measure correct the errors daily resulting from the unbalanced dietary.

Such remedies as cod liver oil, syrups of phosphate and iodide of iron, nux vomica, quinine and digestive alteratives are always necessary to correct errors committed, and regulate present pathological disturbances. Without their proper assistance when they are plainly indicated, the most perfect dietic regulations will be a failure.

Finally, in summarizing this subject, we find it necessary:

1. To feed the elements in food according to the plan nature has laid down in human milk.

2. The digestive fluid in the healthy infant is adjusted so as to digest only a proper proportion of these elements, fat, sugar, and proteid, in its food.

3. These elements in food do not compensate for each other, as each has a distinct function to perform in nourishing the child.

4. Deficiency in one or more elements always shows in "malnutrition." This can not be avoided by increase in the other elements of the food.

5. In addition to the three nutritional elements in human milk, fat, or butter, milk sugar, and proteid, or cheese, nature only supplies one more elementary food —starch. With these four elements all foods for infants and adults are made.

6. Medicinal treatment assists, but cannot entirely correct the errors committed in "malnutrition."

DISCUSSION.

ALEXANDER M. CAMPBELL, GRAND RAPIDS.

I have had some experience with the modified milk that originated in the Walker-Gordon laboratory in Boston, and I have come to the conclusion that that more nearly approaches mother's milk than anything that has been introduced in this country. All the people, it would seem, who have made any study of this matter, know that there are many children who will live on crackers and water and progress, and other children will not even thrive well on mother's milk. I think we are too largely inclined to believe that the mother's milk is always perfect. There are many children who cannot live on their own mother's milk who will do better on modified milk, or who might even do better on Mellin's food and cow's milk. I think there is no class of cases that require individual study so much as this class. I have had children who could not thrive on modified milk and have made dozens and dozens of different prescriptions for them without success, who have done well on Mellin's food and cow's milk. The individual case ought to be studied.

During an association with the Children's Home in our city we tried cow's milk in all these various forms and made a close study of it, and after some time I succeeded in getting the board to allow me to use modified milk, and I tried to make a very close study of that, and we are having better results with modified milk than any other food we have tried, and while our children are not all thriving upon it, I think they will thrive in proportion to the intelligent study which we give the cases. I am a strong advocate of the modified milk, and I think in a city like Detroit it is a shame that those laboratories have not been introduced. If I am rightly informed, there are only about 13 laboratories in the world in which this milk is prepared. We are fortunate in Grand Rapids to have a modified milk laboratory, and the best element of the profession there is making it a close study, and the best and most intelligent people are using it in their homes. I think if it is properly managed a modified milk laboratory will succeed in any city, and the results are far-reaching.

J. A. FERGUSON, STURGIS.

I appreciate this paper and I am sorry that the time is not sufficient for it to be finished from the simple fact that I think we, as practitioners treating children, come in contact with those difficulties perhaps more than anything else in our general work—that is, the adjustment of the artificial feeding of the child. To get that proper adjustment is what the doctor was trying to get at when his time was up.

I find, and I believe that we are all alike in that field, that where the child has to be raised from artificial feeding, that that is the greatest difficulty that we come in contact with, is getting the ratio of the artificial food to be in harmony with the mother's milk, and the most difficult factor that we seem to find is the ratio of the sugar. We find people raising their infants on cow's milk diluted, and we fail as practitioners, a great many times, in impressing upon the parent the necessity of getting that artificial food just as near as possible to the natural food, and neglect—at least I am guilty of it, and I presume I am not alone—we neglect the importance of impressing the fact upon the parent that that food needs to be as near as possible like the mother's food, and consequently it has to be sweetened. Authors differ in regard to the method of supplying the sugar, but whatever method we do apply we should try as near as possible to come up to the standard of the mother's supply of food, and especially in the sugar.

We, as practitioners, meet with cases every day where this law is abused shamefully, where there is no adherence paid to this restriction. Practitioners, in their busy hurry to make their calls, will fly in and will find an infant that is suffering from bad digestion and malnutrition, and sometimes in a feverish state, and they will hustle up and put up a prescription, pick up their cases and go on. This is wrong. I believe that more good results come from the hygienic laws well obeyed, with these children, than from drugs, and I feel, as one of the army in the work, that this ought to be impressed upon all of us, that we should try and do our best to fix the fact in the mind of the parent to make that food just as near like the mother's food as possible, and to give the mother to understand that it is essential that the bottles must be cleaned at each nursing and no more should be placed in the bottle than the child ought to nurse at one time, not fill the bottle, as is often done; you will go in frequently and see the child lying in the cradle with a half pint bottle full of milk, pulling away, and by and by it vomits, etc. We all see those things. Now if we will stop and give that mother a good little lecture as to the necessity of stopping all that business and getting down to the prescribed line, and show her the evil, we will do that child more good than we will with our drugs.

CHARLES DOUGLAS, DETROIT.

I am very much pleased with the discussion by the two gentlemen, who are evidently heart and soul interested in the work that they are doing. The remarks of the first speaker were exceedingly appropriate, in regard to the amount of time and care that is necessary in analyzing patients, and physicians doing this work cannot expect to make their visits, prescribe a few drugs and pass out and expect to have success. That is an impossibility. There is not in my work anything that takes such close attention and requires so much time and so much care with it, as the proper nutrition of not only infants but of adults. I merely took the infant as an illustration of the subject of malnutrition.

Now this subject is much further reaching than we are inclined to think. When you have a patient suffering from any sickness in which his digestive powers are very much decreased, it doesn't make any difference whether it is a typhoid fever or a pneumonia, or whether it is a long attack of tuberculosis, very much stretched out, it becomes necessary for the physician to realize just what power of digestion is left to that patient and to adjust his food accordingly, according to the glands that are left in active operation. It is so far-reaching that I find it touches almost every branch of work that I come in contact with, whether it is cases such as I have suggested, or whether it is patients after operations—it makes no difference where, the same subject comes up continually—the proper nutrition of the patient. I do not think to-day, gentlemen, that there is a subject in medicine that is of such infinite importance as the thorough understanding of this work. I do not think there is any physician who can give close attention to this work in the handling of children who will not improve himself so immensely in the handling of all his cases that he will really be surprised that he could have gone through so many years without understanding the subject thoroughly; I do not think there is anything that is such an educator, that will give him such strength, or that will save so many lives, or improve so many delicate cases, as a thorough adjustment of the food to the digestive glands of that particular individual, whether he is a month old or 60 days old.

THE TREATMENT OF APOPLEXY.

CHARLES W. HITCHCOCK,
Detroit.

This paper has its origin not in any new light which the writer expects to shed upon the condition known as Apoplexy, but rather in his belief that there is need of a more exact and intelligent application of the term by the profession generally, and hence a more rational and scientific treatment of the conditions here encountered.

So long as the term "Apoplexy" is to be applied indiscriminately, in its original meaning of "a stroke or blow," to any and all conditions inducing sudden unconsciousness, without regard to the pathological state lying behind this symptom-complex, just so long are apoplectic states to fail of scientific appreciation and, consequently, to lack, in the majority of cases, intelligent and scientific treatment.

It is, I believe, true that, with by far the larger part of the profession, apoplexy stands for haemorrhage, and its usage is so very broad that it is not infrequently applied to haemorrhage into any organ or cavity. Still others apply it to any sudden insensibility or paralysis. This somewhat vague and broad use of the term has been too much encouraged (inadvertently) by professional writers, and has inevitably obscured any definite condition to which the term should properly be applied. Any scientific and debatable entity is not to be drawn from so broad an application.

Let us recall that apoplexy is a clinical term applied to certain conditions usually characterized by loss of consciousness and sudden paralysis, and due either to the breaking or blocking up of an artery within the cranium. We shall then have but three major varieties of apoplexy, viz.: apoplexy due to haemorrhage, apoplexy due to embolism, and apoplexy due to thrombosis, and to the possible treatment of these three conditions we may address ourselves.

Here, as elsewhere in the consideration of the problems of disease, questions of diagnosis cannot be divorced from those of treatment, and apoplexy is to be first distinguished from the various primary and secondary comas due to, e. g., traumatism, alcohol, narcotics, insolation, and uraemia. From all of these, apoplexy due to haemorrhage is more easily differentiated than from the conditions due to cerebral embolism or thrombosis. Nor, indeed, can this latter distinction always be made positively or at once.

Even somewhat confusing are the statements of different authorities, one stating quite positively that "right hemiplegia and aphasia, with absence of previous cerebral symptoms, argues for a diagnosis of embolism," while an even more authoritative writer assures us that, "when profound insensibility, which has been abrupt, has existed for some hours in a person over forty, the chances are strongly in favor of a diagnosis of haemorrhage."

This fact is, however, to be borne in mind, that embolism is not a primary condition, and if there be no endocardial lesion found to justify the suspicion, the diagnosis of embolism may be rejected (and this will be the fact in by far the greater number of cases).

Thrombosis and haemorrhage are not so lightly to be dismissed. Thrombosis especially is predisposed to by syphilis, alcohol, rheumatism, gout—contributed to, in short, by all the causes which encourage the productive inflammations of arterial

walls—and these changes are more numerous, more common, than we are wont to think.

Haemorrhage is more commonly due to the rupture of a miliary aneurism, which condition obtains most often in the smaller arteries, notably the basal branches of the middle cerebral. That this lesion is found more frequently in cerebral vessels than elsewhere is explained by the relatively slight external support afforded these vessels, the greater strain upon them because of their origin from large trunks, and because of a much less free anastomosis here than is common elsewhere. Atheromatous conditions may be present in the larger vessels about the circle of Willis, and a condition of miliary aneurism exist in these smaller vessels, or either condition may exist independently.

When we consider the enormous frequency of the thousand-and-one causes inducing thickening of arterial walls, and consequent encroachment upon vessel lumen, it certainly seems most rational to suppose that thrombotic apoplexy, the natural result of these conditions, is likely to be the more frequently encountered. Symptoms from the two are apt to be very like and confusing. It is not always possible, at the time of the attack, to go back into the patient's past and confirm (or otherwise) any suspicion of recurring attacks of irritability, mental confusion, temporarily impaired memory, fleeting paralyses, or paresis, paraesthesiae, etc., those common precursors of a cerebral thrombosis. We may have before us only the patient suddenly comatose and with stertorous respiration, and if we are able to exclude other causes of such a state, it may tax us to the utmost—nay, may be impossible—to tell whether this is due to a plugged vessel, cutting off the supply to a definite cortical or basal area, or whether this supply has been deviated through a small rent in a vessel wall, thus depriving the area of its supply and working damage to important structures by the laceration of nerve tissue.

The two accidents may, for a time, present the same clinical picture, though, in the case of haemorrhage, the coma is apt to be deeper and more persistent. The onset of haemorrhage, as has been intimated, is wont to be the more abrupt, yet light upon such facts is not infrequently wanting. Cases of ingravescent haemorrhage, it should be remembered, are sometimes quite slow in their progress to deep coma. Age is sometimes a helpful factor, for haemorrhage is essentially a disease of the degenerative period and seldom occurs before forty. At least eighty per cent of cases are said to occur after that time, but arterial blockings not so infrequently occur earlier. The haemorrhage may take place during some act inducing unusual vascular tension, or it may occur during sleep. The lumen of the artery may become blocked at any time.

The early clinical picture is very often such as to greatly alarm those most interested and there is usually an unwise desire to do many and vain things. One wishes to raise high the patient's head, which may be well enough with a full pulse and a broken vessel, but if there be contracted vessels and a blocked lumen, this is only to still further interfere with a needed and already much impaired blood supply. Measures more vigorous than wise are sometimes undertaken to drive the blood from the head—blistering of the neck or feet, hydragogue catharsis, etc. These things, in the uncertainty of immediate differential diagnosis, may do more harm than good. Ice to the head

may lessen chances of haemorrhage and possible not greatly increase the danger, if the case be one of thrombosis, from further contraction of arteries already too small of lumen. On the other hand, the nitrites, and the arterial dilators generally, while possibly somewhat helpful in conditions of thrombosis, may only add fuel to the fire if the case be one of haemorrhage. Diminished blood-pressure, though often desirable, is too seldom efficiently secured by the measures commonly applied. Venesection, if it is to avail anything, must be applied early in these cases. It must be obvious that the desired conditions are in the main quite opposites, in these two states.

Indeed, that immediate treatment of apoplexy savors of most wisdom which counsels the least active measures. If the importunities of the friends make the appearance of active efforts necessary, let him in command of the situation so tactfully manage that while much is apparently done, his real course is one of masterly inactivity. There is no doubt that the patient's chances in the early stages are too often impaired rather than helped by the unwise anxiety to do much. Wise waiting will not lessen the chance of recovery and will often help to clear away clouds of doubt so that later measures may be taken on more certain ground. If the lesion has been so serious as to cause early death, more prompt, active treatment could not have averted the end. Overloaded bowels and stomach, or distended bladder, it may be necessary to evacuate, but the patient is best but little disturbed during the period of unconsciousness. Inability to swallow, if long persistent, may occasion resort to rectal feeding, but ordinarily the first twenty-four hours, if the case be recoverable, will see consciousness restored.

As the general symptoms subside, the local symptoms crowd more to the front and the extent of the paralysis with which one has to deal becomes more apparent. Intelligent treatment through the period subsequent to the attack has been more often "honored in the breach than in the observance." The patient merits better things than to be merely shelved as a paralytic for whom nothing can be done. Careful attention to the digestive and eliminative functions, ice to the head and perfect rest for a goodly time after the attack, may keep softening at the minimum. Arterial tension and the heart's action are to be carefully studied and treated as the circumstances demand. After the symptoms immediately incidental to the attack have in a measure subsided, electricity, massage, active and passive exercises may be made use of as rational means with which to combat the after-coming conditions of contracture, spastic states, and sundry trophic changes. Especially, patients with flaccid paralysis are wont to be improved by the judicious use of electricity. Moderate massage is very often helpful in maintaining muscular nutrition, and so preventing or retarding secondary changes.

It is astonishing to note the possibilities of re-education by graduated exercises when judiciously persisted in. The writer has seen a tabetic, whose powers of locomotion were sadly interfered with, so greatly improved as to walk quite well without support. He, of course, learned to walk with his brain instead of his spinal cord. Similarly, it is possible to do more or less in recovering functions

which have been in abevance through the damage done by an apoplexy.

Though it is well to bear in mind that a syphilitic endarteritis is most frequently responsible for a thrombotic apoplexy, the too-frequently-drawn inference is not logical, that hence vigorous anti-specific treatment will relieve or remove the condition. It is then too late to accomplish much, if anything, by such means, and time and ammunition are worse than wasted in the majority of cases, for it must be obvious that fibrous tissue once deposited is not to be removed by any anti-specific remedies as yet known to the profession.

It seems paradoxical, possibly, to speak of the prophylactic treatment of apoplexy, but some one has well said of hysteria that its treatment should be begun before the birth of the patient. Thus, too, it is true of apoplexy that the common precursors of cerebral thrombosis, when rightly interpreted, afford the most hopeful opportunity for preventing serious damage. Although even at this time, probably, fibrous tissue has been deposited in vessel walls, surely the best opportunity for checking this productive inflammation lies in the early rather than in the later stages. Since haemorrhage so seldom gives any warning of impending evil, these considerations as to prophylactic treatment apply to thrombosis or embolism only. Prophylaxis as to the latter will consist naturally of means, both medicinal and hygienic, directed to the endocardial condition. The patient must be made to know his danger and be carefully advised as to an even tenor of life, as free as possible from mental and physical strain.

Cases of threatened thrombosis are of special interest, for the symptoms are so frequently clear-cut, numerous, and frequently repeated. The question is: "How much can we do?" For twenty years, arterial degenerations have been better recognized than previously, and yet it may be doubted if we have made great progress along the therapeutic pathway. Do we to-day know any remedy upon which we can rely which can either jugulate or prevent the productive inflammations of arterial walls? In this, it seems, must lie the hope for really efficient treatment in the early stages of such inflammatory process, for the law of pathology seems inexorable that fibrous tissue, once formed, is not to be done away with.

Occasionally, we see some bold attempt along the line of combating these scleroses, and hear claims made for measures like the following, but they are as yet lacking in testimony of time and trial. I refer to a serum known as Trunecek's serum, the following formula for which comes from Merck's Archives:

Sodium Sulphate	0.44 gm.
Sodium Chloride	4.92 gm.
Sodium Phosphate	0.15 gm.
Sodium Carbonate	0.21 gm.
Potassium Sulphate	0.40 gm.
Distilled Water, q. s. ad.	100 gm.

This is said to contain all the alkaline salts which exist in the normal blood and in normal proportions when diluted with nine times its weight of water. It is said to be beneficial in general arterio-sclerosis, cerebral arterio-sclerosis, etc. Trunecek injects 1 c. c. of the concentrated serum every four to seven days, gradually increasing. This may be worth a trial.

While it must be admitted that we have as yet no specific which we may apply at this early and most hopeful stage, yet we should be earnest in all reasonable efforts to counteract promptly any discovered

tendencies to arterial degenerations. These patients are frequently, I know, those upon whom it is most hard to make any impression through advice as to their danger, necessity for improved habits of life, such as the abolition of alcohol, venery, high pressure, late hours, etc., yet we shall stop short of our duty if we fail to emphasize these things. Here, too, in the earliest detectable stages, anti-specific measures have their proper place. A better hygiene and improved dietetic regimen can often be secured by advice tactfully presented.

If, on the whole, apoplexy is, as it is often regarded, one of the darkest corners of the large problem of disease, it surely is all the more incumbent upon us to make use of all the light we have, to consider more carefully the probable pathological conditions with which we are dealing, and to apply rational and scientific treatment rather than follow blindly the traditions of precedent, as we all know is too often done.

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THE DIAGNOSIS OF ANEURISM OF THE AORTA.

P. M. HICKEY,
Detroit.

It is not my intention in this short paper to enumerate the classical methods of ordinary physical diagnosis of value in the diagnosis of aortic aneurism. These you will find fully described in the various text books on physical diagnosis. My purpose, however, in presenting this short paper is to emphasize the importance of an X-ray examination of the chest in cases where aortic aneurism is at least suspected to be present. To illustrate the value of a fluoroscopic examination, I will give briefly the history of two cases which seem illustrative of this point.

Case 1 (seen with Dr. E. L. Shurly). Mr. W., age 53, carpenter; married for 30 years. Two children, both healthy. General health always good until two months before the examination, when he became hoarse. Never had any fever. Lately has been feeling weak and now complains of great dyspnoea on exertion. Lately has also had considerable cough. Complains of wheezy sensation in his chest; has no pain. Examination shows paralysis of the left vocal cord, prolonged expiration of respiratory murmur, particularly on the left side. Temperature 98, respiration 18, pulse 82. No tubercle bacilli present in sputum. There was no tracheal tug, no pain in the chest, no bruit. It was impossible to note any pulsation either in front or back. The diagnosis in this case lay between a gumma of the mediastium, mediastinal neoplasm or aortic aneurism. Fluoroscopic examination of the chest showed a large shadow above and distinct from the heart, which distinctly pulsated and which grew distinctly larger on forcible inspiration. A positive diagnosis was then made of aortic aneurism. In this case there was no bruit, no pulsation, no tracheal tug and no pain. The diagnosis in this case was confirmed by autopsy some few weeks later.

Case 2. Mr. G., age 35, bartender; single. Probable syphilitic history, although it was impossible from his statements to make a positive diagnosis. Complains of having been short of breath and hoarse for some months. Dates his trouble back to a trip on the roller coaster. When under the exhilaration of the high speed he used his voice very sharply. Since then has complained of intermit-

tent hoarseness. The dysponea at the time of examination was very marked. Laryngoscopic examination showed paralysis of the left vocal cord. There was no cardiac murmur, no bruit and no abnormality in the respiratory sounds. He had been advised by one physician to go to Colorado for his health. Fluoroscopic examination revealed a large pulsating shadow on the left side above and distinct from the cardiac shadow. Patient was advised of the seriousness of his condition and warned against the danger of going to a high altitude. However, he accepted the advice of the physician who told him that his trouble was pulmonary, and went west and died from hemorrhage on the train. These two cases are sufficient to emphasize the necessity of a fluoroscopic examination in order to verify a probable diagnosis of aortic aneurism. I have notes of other cases where the positive diagnosis was made with the screen, but where the diagnosis was not verified by autopsy.

It might be well to describe briefly the technique which I have found useful in the examination of the chest with the Roentgen ray. Personally, I make use of a large induction coil, although probably as satisfactory work can be obtained with a static machine, if it will generate a volume of current for the proper penetration of the thorax. It is essential when examining the chest with the Roentgen ray to employ a current sufficiently strong so as to secure proper penetration. If the induction coil is made use of, better results will be obtained if an electrolytic interrupter, as the Wehnelt or Caldwell interrupters, is employed. Good results are also obtained with the mercury break interrupter. It is difficult to make a satisfactory examination of the chest with an induction coil with the old-fashioned vibrator break, as the illumination is apt to be flickering. Perhaps one of the most important parts of the technique is the selection of a suitable tube. If a high vacuum tube is employed, the entire chest will be lighted up with only slight variations in illumination. It is essential to use a low vacuum tube capable of taking care of a large amount of current. In this way the maximum definition is secured, and a differential diagnosis is made comparatively easy. One of the failures, perhaps, of some of the workers with the X-ray in chest examinations is that they have not used a tube of proper vacuum. The tube which I have found most satisfactory for this work is a tube imported from Germany which has a very simple device of rapidly lowering the vacuum. This tube will take care of a large volume of current for a short time, say from one to two minutes, which is sufficient for any chest examination. The ordinary fluoroscope can be used, but there are some points which make the use of a fluorescent screen of larger size of greater value. I have found a screen 20 inches long by 6 inches wide very suitable.

The most important point in the use of the X-ray in the examination of the chest is to have the room properly darkened. In order to secure this it is better to have the coil or static machine and the Crooke's tube in a room entirely separate, and to allow the radiance from the tube to pass through some partition which is easily permeable, such as black canvas, which will exclude from the eye all extraneous light. By having such a room absolutely darkened and remaining in the room a short time before

making the examination, so as to allow the retina to become thoroughly rested and the pupil of the eye to be fully dilated, better results can be obtained. It is unsatisfactory to make an examination in a room which is only partially darkened without having the eyes thoroughly rested.

In closing this short paper, I would like to state distinctly that I am not advocating the exclusive use of the X-ray in examination of the thorax. It has been my purpose to advocate its use as a supplementary means of examination in addition to the ordinary classical methods which are in vogue at the present time. It has been considered that the Roentgen ray is more valuable in surgical cases, but the recent literature would seem to indicate that there will be a greater field in the diagnosis of medical cases.

THE CAUSES AND TREATMENT OF ASTHMA.

CHAS. H. BAKER,
Bay City.

Did you ever hear the expression "gunning for sparrows with a cannon?" I was reminded of this expression recently in looking over a widely distributed publication, an index of remedies compiled from standard works in medicine, and seeing how extensive was the list of remedies recommended in asthma.

Only seven other ailments, tuberculosis among them, had an equal number and the list was not as complete as could have been made.

There were no less than sixty remedies in this confession of ignorance, as it ought to have been termed, and their actions were the most varied and opposite in character. You had your choice between nerve sedatives and nerve stimulants, sedatives to respiration and circulation and stimulants ditto; alkalis and acids, astringents and counterirritants, emetics and anaesthetics; remedies suited to gout, syphilis and ague, digestives and antiseptics, electricity and hypnotism; or all these failing there were still steam, smoke, mud, climate, clothes, sulphur and spectacles.

Some time since Dr. Barnhill, of Indianapolis, wrote the professors occupying the chairs of practice in all the western regular colleges to show how many had ever cured asthma by medical treatment, and all who replied stated without exception that they had cured none, and I am certain that an honest census of the profession would show an overwhelming majority holding the same opinion.

Barring cardiac and renal asthma, which are not properly classed as true asthma, recent writers claim asthma to be a reflex disorder, due primarily to nasal irritation, engrafted on a suitable nervous organization, *i. e.*, one of those hair trigger nervous systems which require only a touch to set off the explosion. This is the type of organization which is liable to chorea, epilepsy, hay fever, asthma, etc., when irritation is applied to some peripheral nerve area.

It is possible for irritation of other organs than the nose to induce an attack in a confirmed asthmatic, as indigestion following a rich salad or sudden arrest of skin functions by cold, but evidence is rapidly accumulating to show that by far the larger number of asthmatics have nasal irritation as a starting point for their attacks.

The confessed failure to cure by medicine alone is my excuse for bringing this subject before a body of general practitioners in the hope that the causes of the disease will be better and more generally recognized and the large army of hopeless sufferers from this disorder be relieved.

At the present time so many men in general practice do some work upon the nose, and men now graduating into medicine are so much better equipped to recognize nasal disease, that many sufferers from asthma may receive proper treatment at the hands of the general practitioner, especially those in the villages and country, where access to the rhinologist is difficult.

Probably the most widely accepted theory of the cause of asthma has been the presence in the blood of some material which, failing of elimination by the skin, bowels and kidneys, is eliminated by the mucous membrane of the lungs, producing local congestion, irritation of the nerve endings and reflex spasm of the unstriped muscle fibers.

The presence in the sputum of Cushman spirals, and the Charcot crystals, has lent color to the theory, but no satisfactory origin for the crystals has yet been found. They do not always occur in asthma and have been found in sputum not asthmatic, while the spirals are undoubtedly fibrinous casts of the laryngeal glands which have been formed during the attack and are allied to the fibrinous exudate that occurs in the nose in advanced hay fever.

Furthermore the spasm occurs first and the exudates follow, the congestion being a result of the spasm and the straining to get breath.

Asthmatics often pass from a state of normal health into a severe attack immediately after a sneezing fit produced by nasal irritation.

Touching certain areas of the nasal membrane in these patients will excite a soft, rattling cough without expectoration, and many of them will at once begin to wheeze as though commencing an asthma paroxysm. I shall make no attempt to enumerate all the causes which have been credited with producing this disease, but will at once describe some typical cases that illustrate the various nasal conditions which I have found to produce the disease and the removal of which has cured or greatly helped the paroxysms.

Please note that no claim is made to be able to cure all cases of asthma, for nerve habits are the hardest to break up, but by removing the first cause, the nasal disorder which produced the attacks, many can be cured and most can have the attacks greatly lessened in frequency and severity.

Case 1. Woman aged about 50 years had suffered from hay fever and asthma many years. Her asthma was perennial, although most severe during the hay fever season. She had a short nasal spur of the left side, which easily came into contact with the lower turbinate on slightest swelling of the latter, but little evidence of any other nasal abnormality. The spur was removed and the asthma immediately ceased and has not recurred. This patient is the type of a large number of highly neurotic subjects with slight periodic irritations as the cause of the asthma.

Case 2. Man aged 30 years, a chronic sneezer, who never could lie down and

sleep all night while in Bay City, although in Mackinaw his asthma troubled less. Left nasal chamber normal. In right chamber had a spur so long that it had pushed into the middle of the lower turbinate, produced absorption of the latter and was pushing against the nasal wall.

Its removal was accomplished by the trephine and Gruenwald forceps, at once arresting both sneezing and asthma so that he has been able to sleep undisturbed from the day of its removal.

This case is an extreme one of the class to which the first belonged, although as in several of like severity the neurotic element has not been very marked.

Case 3. Man about 35 years of age. Suffered eleven years with chronic asthma which of late prevented him from following his trade of barber, as he could not raise his arms or stand while the attack was in progress and his paroxysms were worse in daytime, contrary to the rule. The middle turbinate was found bullous and pressing on the septum in each chamber. Removal of the worst one lessened the severity and frequency, while removing the second stopped his attacks altogether.

Case 4. Girl fourteen years of age who had had asthma since one year of age, most of the time severe enough to prevent her sleeping prone for weeks together. Large tonsils and adenoid bursa left from the former adenoid mass, which must have entirely closed the nasopharynx, removed. Attacks lessened in severity. Middle turbinal which pressed on the septum also removed and attacks at once stopped. This patient had the typical adenoid face, and the enlargement of turbinals was more apparent than real owing to arrest of nasal development from the adenoids, although the pressure resulting was active in prolonging her asthma.

Case 5. Woman aged 40. Had nasal polypus removed at intervals during past five years, each clearing stopping for the time being her asthma. Went to Washington and lived in the dry air eight months without asthma, but on reaching Chicago was seized with severe attack which continued almost without interruption for weeks.

Removal of the polypi, scar tissue, from previous removals and middle turbinates has stopped the disease so that she had no more attacks except one, produced by irritation of the polypus that formed during the healing of the turbinal stump.

I could fill a paper of twice the length of this with histories of cases, but the types given illustrate what I wish to make prominent. Among the cases mentioned and others like them is one factor which they possess in common, namely, pressure on sensitive areas of the nasal chambers. Even case four, which was primarily an adenoid case, had pressure from swollen turbinates in infancy, which led to the bony hypertrophy that perpetuated the condition of pressure when we might reasonably have expected spontaneous recovery.

Few of my cases have taken any sort of medical treatment for their asthma since operating, simple cleansing of the nasal chamber until healed being all they required.

By far the larger number of asthmatics treated have had nasal polypi, and the removal of the polypi has been followed by prompt relief. It is a curious fact that a very small polypus will bring on a paroxysm of asthma almost as certainly as the largest; therefore it is highly necessary to secure all when undertaking their

removal. Polypus grows most frequently from the lower edge of the middle turbinate, next from the edges of the hiatus semilunaris, which lies to the malar side of the middle turbinal, and lastly from the upper surface of the turbinate, very rarely from any other part of the chambers. Being caused by disease of the turbinate and adjacent sinuses they are seldom extirpated permanently without removing the middle turbinate.

Almost invariably when this is done several polyps are found snugly hidden behind or above the bone where they could not be seen or reached until the bone was first removed.

To recapitulate, asthma is a reflex disorder primarily due to nasal pressure, intermittent or constant, occurring in a patient of the neurotic temperament.

Asthma can be cured in many and relieved in most by such measures as will remove this pressure.

Asthma being primarily a surgical disease, the various drugs recommended for its cure, with very limited exceptions, should, as Oliver Wendell Holmes said, "be cast into the sea, and it would be better for people even if it were worse for the fishes."

DISCUSSION.

WILLIS S. ANDERSON, DETROIT.

I have been very much interested in Dr. Baker's paper and feel that he has reported to us interesting cases showing the nasal origin of a certain number of cases of asthma, but I think it is very unfortunate to have the impression go out that all cases of asthma are of nasal origin, and in dissenting from this view I speak as one who has given over ten years of time largely to nasal and throat work. I think it is a great mistake, and brings discredit upon those of us doing special work, to assign all cases of asthma as primarily of nasal origin. It seems to me much better to look upon asthma as a neurosis with an exciting cause, and not confined necessarily to the nasal chambers. There are any number of cases seen by the general practitioner, and by those doing special work in other lines, that are clearly not of nasal origin. For instance, I recollect one case, that I saw in Detroit, which was operated upon for nasal trouble by a competent man, but the asthma was not relieved. She fell into the hands of a general practitioner, who, for other symptoms, repaired a lacerated cervix, and from that time until now she has not had any return of her asthma, showing that in this case the pelvic trouble was the exciting cause of the asthma. In the same way the stomach, the intestines and other organs may excite, or keep up asthmatic attacks. I agree with the doctor that a great deal can be done, in many cases, by nasal treatment, but there are many other cases which are independent of nasal disease, and in these medicinal, local and climatic treatment will do a great deal for many cases where nasal surgery will fail.

*MODERN DIAGNOSIS.

P. S. ROOT,
Monroe.

A few general remarks under this heading may not be untimely, especially if they serve to keep us in touch with scientific methods and the aids to be derived fromt he employment of such methods. I do not need to tell you that with the trend of scientific medicine has come a certain perfection of detail in diagnosis which heretofore was unknown to us.

Prior to the discovery of these aids, our deductions were arrived at by inference and empiricism, while today the determination of a great majority of diseases is a simple matter—almost a purely occular demonstration. Contrast, if you please, the status of internal medicine today with that of twenty or thirty years ago, and what do we find? Take, for instance, such a disease as typhoid fever;

*Read at the meeting of the Monroe County Medical Society, January 22nd, 1903.

it could not with certainty be diagnosed from certain unusual forms of malaria or sepsis. In fact there was then no objective symptom that might not be found in some other diseased condition. We have now but to call into requisition the Widal and Diazo reactions, and in nine cases out of ten the nature of the disease is positively known. So, too, with the malarial affections; we no longer depend upon chills, paroxysms or remissions, but simply examine the fresh or stained blood with the microscope, and if the plasmodium is found, the nature of the disease is evident. A word might be said in reference to the so-called "typho-malarial" fever, if for no other purpose than to condemn the use of the term. We know that in the Spanish War a few cases were seen in Cuba, in which both the Widal reaction was positive, and the parasite of malarial fever was found in the blood. But I am not aware that these findings have, at any time, been confirmed by observers in this country. With us the term appears to be largely used to circumvent the requirements of the law in regard to the reporting of typhoid fever. This is not just to the patient, the family, or the public, and no self-respecting physician should be guilty of such deception.

With the exact knowledge of the pathology of tuberculosis, came also the easy determination of the etiological factors, viz.: the bacilli of tuberculosis. In the pulmonary, renal and bladder forms of this disease, the microscope and necessary stains, afford a ready means of diagnosis. So, too, with pneumonia, the microscopical examination of the sputum will show the pneumococci, which, if found in large numbers, and in the form of colonies, with perhaps some blood corpuscles, you are safe in treating the case as one of pneumonia. You must not, however, be misled by an occasional pneumococcus which may be, and is quite likely to be found in any specimen of sputum.

Another disease which bacteriology has brought within our grasp, is diphtheria. Here we have but to take a culture from the throat and in twenty-four hours we may be positive as to the nature of the affection. From this discovery alone has resulted the saving of thousands of lives.

"Koplik's Spots" in measles are come to be relied upon as pretty distinctive and constant in this disease. Personally I have been able to make a diagnosis in many cases one or two days before the advent of the eruption. In fact, I do not recall a single case in which the "spots" were not in evidence. "Lumbar Puncture" is a valuable aid to us in the diagnosis of spinal meningitis. If the fluid be found cloudy, that in itself is certainly very suggestive, but going further, bacteriology will remove all doubt. "Krenig's Sign" also gives us confirmation in cerebral meningitis. This symptom becomes evident when the thigh is flexed at right angles with the body, then full extension of the leg is not possible. The sign is not infallible, but is of much value. There are other tests of frequent use in nervous disorders, but those mentioned are perhaps the most important in general practice. In conclusion, I wish briefly to call your attention to some of the benefits to be derived from a study of the blood. In this connection I think that it can be truthfully said that our knowledge has been wonderfully increased since haematology has come to be recognized as the leading factor in diagnosis. A case occurring in my own practice some years ago will exemplify: It was that of a young lady who for a year previously

had been attending school in a western city, and while in this school she became ill, with what appeared to be tubercular peritonitis. Her symptoms were such as pointed quite conclusively to this disease; continued fever, tympanites, diarrhoea and marked emaciation. After some little observation, I referred the case to a specialist in Detroit for operation. An examination by this surgeon resulted in the diagnosis of an ovarian tumor, and after a few days in hospital she was made ready for a laparotomy, when it was discovered that the patient had an enlarged spleen, and that her serious symptoms were due to disease of this, and other blood forming organs; in short, the case was one of splenic leukaemia.

Such an erroneous diagnosis would hardly be possible to-day. We should only require a specimen of the blood, and the requisite stains, when our task would be almost as easy as counting one's fingers. To cite a case of more recent occurrence: A young boy of this city was treated for some months, or until shortly before his death, for tuberculous peritonitis. About one week prior to the boy's death a correct diagnosis of leukaemia was made. And so we might multiply instances, but suffice it to say that, with a proper examination of the blood, we may with absolute certainty diagnose all such diseases as: chlorosis, pernicious anaemia, leukaemia, anaemia, replapsing fever, malarial fevers, etc., etc. There are of course many tests to which I have not alluded—tests that are of much value—and yet I trust that I have called to your attention some of the possibilities of scientific medicine. Within the past two years there have been diagnosed in this city four cases of these obscure blood diseases, and that, in the practice of two physicians only, by the microscopical examination of the blood cells. I have directed your consideration to these data that you might have, as it were, a practical demonstration of what the general practitioner may do. The technique of these various tests is not difficult, at least not so difficult but that any physician may possess a working knowledge of the details. The day of "snap diagnoses" is rapidly on the wane, and deservedly so. We are perhaps too slow in taking advantage of our opportunities, for I believe the time is not far distant when our patients will demand of us a more up-to-date knowledge of the practice of medicine. We cannot afford to sit idly by and allow the time-honored name of "family physician" to become a misnomer; and I therefore plead with you to apply your attainments and endeavor to perfect yourselves in those subjects in which your knowledge is deficient.

As physicians you should not be unmindful of the fact that our colleges are turning out men well grounded in pathology, and all that pertains to scientific medicine. We must meet these men, and to do so with credit to ourselves, we must needs be vigilant and well-armed for competition. To this end let us make our society a common meeting place, where each may bring some fact, some observation for the general good of all.

Ottawa, Illinois, Jan. 19th, 1903.

THE EDITOR—Will you kindly note in your valuable Journal that the date of meeting of the Illinois State Medical Society has been changed from May 19-20-21 to April 29-30, May 1-2, 1903, in Chicago. This change was made necessary to anticipate the earlier meeting of the American Medical Association at New Orleans.

Yours very truly,

E. W. WEIS, Secretary.

The Journal of the Michigan State Medical Society

All exchanges, books for review, manuscript, etc., should be addressed to the EDITOR, 57 W. Fort St., Detroit, Mich. All communications relative to advertising, subscriptions, etc., to the BUSINESS MANAGER, 315 Stevens Building, Detroit, Mich.

DETROIT, FEBRUARY, 1903

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Editorial

A MEDICAL DEFENSE FUND.

Nothing more clearly demonstrates the advisability of a common defense fund for the protection of our members from the annoyance and expense of an unwarranted suit for malpractice than the suit recently brought in the judicial circuit of Macomb County by the husband of the deceased against Drs. Harry G. Berry and Harry F. Taylor, of Mt. Clemens, and Dr. Angus McLean, of Detroit, for malpractice on account of an alleged error of judgment in operation and subsequent faulty surgical treatment in the case of a woman operated upon for appendicitis, who died several days later of what was clearly shown at the trial to be due to uraemic convulsions. At a postmortem upon the deceased done by Drs. W. D. Wilson and M. C. Cronin, of Mt. Clemens, without the knowledge of the defendants, what they claimed to be the appendix was removed. Upon the trial it was proven that this piece was either the stump of the appendix or a diverticulum. Fortunately for the honor of the surgeons the original appendix had been preserved.

It took the jury but a few minutes to decide that there was no cause for action; yet, besides the loss of time and the unwarranted annoyance and uncertainty of many months, the suit cost the defendants over $2,000.00.

It has been estimated by those familiar with the subject that a common defense fund could be created and maintained at a very moderate cost per capita. Whether such a fund should be established within each county or by the State Society is a matter to be determined upon a more thorough investigation. The committee on legislation of each society should take this matter up. It is of course understood that such a fund could not be used in criminal suits or for paying any damages.

At a meeting of the Presidents and Secretaries of seven State Societies, held by invitation of the President and Secretary of the American Medical Association in Chicago last month, Dr. Harold N. Moyer, of Chicago, outlined the plan advocated by the Chicago Medical Society (the official medical society of Cook County), which is to retain at a moderate cost some well and favorably known legal firm, whose duty it is to familiarize itself with the various problems to be solved. In this way many threatened suits have never been brought to light, many dollars have been saved and much annoyance avoided.

RELATION OF MORBUS GALLICUS TO THE KIDNEY.—A FEW POINTS ONLY.

Syphilis, like a bad coin, a doctor is liable to meet anywhere and at any time. Its manifestations are greatly varied. Any organ in the body can be affected—some much more frequently than others. It is the object of the writer of this article to bring together briefly some of the effects of the "great pox" on the nephros.

Lues venerea of the kidney can occur during any stage of the disease, though it is more common in the secondary and tertiary periods. It makes itself a companion to the old as well as to the young.

The kidney is not as often visited by it as are some of the other body organs.

PATHOLOGY.

1. Albuminuria with no marked clinical evidence of inflammation of kidneys (Pastoir).

2. Syphilitic nephritis—lesions cannot be differentiated from those of other acute infections (Osler).

3. Gummata of kidneys. This usually cannot be diagnosed clinically (Osler).

URINARY EXAMINATION.

As one would imagine, the condition of the urine depends on the character of the process in the kidney. You may have nothing abnormal in the excretion of the nephros, or again, one may find albumin, or again one may find albumin, sugar, urobilin, increase in urea (Pastoir) and casts (epithelial, hyaline, granular, blood) (Stockton).

Pastoir believes that syphilitic anemia plays an important role in luetic nephritis, while Bacon says it is caused (1) by primary alterations in blood (particularly in globules and albuminoid principles), and (2) by passage of specific organisms through the kidneys, producing changes there, thus setting up an infectious nephritis.

No absolute diagnosis can be made, either from the kidney symptoms alone or from the urinary examination, but the recognition on the part of the doctor of the presence of other less marked syphilitic lesions (at times they may be very obscure), and the response of the disease to luetic treatment, settles the matter.

Outside of the treatment, the most important thing to the mind of the doctor as well as to that of the patient, is the prognosis. They both want to know what the outcome is to be. (1) Fortunately recovery is the rule, though this may take several months after treatment is begun. (2) In a few cases the disease becomes chronic. (3) In very rare instances it takes on a fulminating type and death occurs within two to three weeks.

GUY L. CONNOR.

County Society News.

CALHOUN COUNTY.

At the annual meeting of the Calhoun County Medical Society, held in Marshall, Dec. 9th, the following officers for 1903 were elected:

L. S. Joy, of Marshall, President.
Jas. H. Reed, of Battle Creek, Vice-President.
W. H. Haughey, of Battle Creek, Secretary-Treasurer.

BOARD OF DIRECTORS.

J. L. Ramsdell, five years.
Eugene Miller, four years.
E. J. Pendell, three years.
A. J. Abbott, two years.
C. G. Vary, one year.

A. W. Alvord, of Battle Creek, delegate to State Society for 1903:

Nine new members were received, making the total membership to date sixty-five.

The scientific program consisted of address of retiring president, Geo. C. Hafford—"Considerations of Some Cardiac Problems," and a paper by Angus McLean, of Detroit, "The Biliary Passages—Bile Flow—Surgical Treatment." Also a discussion of business methods by Dr. Eugene Miller, and a paper on "Iritis" by Geo. W. Green.

In the evening the members and their ladies were entertained by the ladies of Marshall, at a magnificent banquet, delightfully served in their honor. Covers were laid for one hundred. The literary and musical program following was particularly fine. Much credit is due the Marshall ladies.

W. H. HAUGHEY, Sec'y.

*THE BILIARY PASSAGES—BILE FLOW—SURGICAL TREATMENT.

ANGUS McLEAN,
Detroit.

The biliary passages are the canals that carry the bile from the organ in which it is secreted, the liver, to the organ in which it performs its function (if any), the intestinal canal; they consist of ducts that lead from the liver to the intestine with a diverticulum leading off to the right, known as the cystic duct and gall-bladder, which is supposed to act as a reservoir for the bile during the intervals of digestion, and are situated in the right hypochondriac region between the liver and duodenum, the gall-bladder being under the costal cartilage of the ninth rib. These tissues do not take any part in the secretion or function of the bile and simply act as a medium in transferring the bile from one organ to the other. The biliary tracts, like other hollow visera of the abdominal cavity, are composed of a muscular wall lined with mucous membrane and surrounded in their greater portion by the peritoneum which forms the serous coat. The mucosa of the biliary duct is continuous with that of the duodenal canal and any inflammatory condition that affects the latter may extend to the former. Micro-organisms or parasites that occupy the intestinal canal may find access to these ducts and be the cause of disturbance there. The diseases of the biliary ducts. that are not produced by cholelithiasis, usually extend from the intestinal canal as a contiguous inflammation or the transmission of micro-organisms that are habitants of the intestinal tract. This may be in form of a catarrh that extends up the common duct from the duodenum, and as a result of this, catarrhal cholangitis follows. These conditions may extend to the gall-bladder, producing a cholecystitis. A catarrhal cholangitis is usually preceded by a history of some gastro-duodenal disturbance with symptoms confined to these organs, and is not accompanied by febrile disturbance—but as a result of this cholangitis the biliary flow may be interfered with from a closing in of the ducts, and the evidences of jaundice soon become apparent. This simple inflammatory condition may become a septic one by sepsis from the intestinal tract and a suppurative cholangitis follow that may extend to the gall-bladder and result in empyema of that organ; this is a doubly dangerous condition, for there is not only an obstruction to the discharge of bile but there is also a septic condition present. This will be accompanied by chills, fever, and other evidences of sepsis, and what was a simple condition and somewhat amenable to medical treatment now produces a surgical aspect, which we will refer to further on.

The most interesting and important disturbances of the biliary tracts are those produced by that condition known as cholelithiasis, biliary lithiasis, or gall-stones. Statistics show that about 75 per cent. of all diseases of these organs are produced from this cause.

Etiology—Two principal theories are held by investigators as to the cause of gall-stones, the chemical and anatomical. According to the chemical theory (of Thudichun and Bouchard) calculi are formed by precipitation from special chemical changes in the bile and the cholesterin is not dissolved. If the cholesterin is not dissolved and a large amount is present in the bile, it precipitates. This theory is opposed by Nauyn, the chief objection being that the proportion of cholesterin in the bile is constant and not increased in cholelithiasis and that the bile contains an amount of biliary salts and fats greater than is necessary to dissolve the cholesterin.

The anatomical theory is supported by Meckel and Nauyn, who hold that the calculus is formed by a special catarrhal condition of the bile passages (lithogenous catarrh) whose function it was to separate the cholesterin and the salts of lime, and which, by this inflammatory condition of the mucosa, increased the amount. The finding of a special bacterium in calculi, the precipitation of bilirubin and lime by the bacteria of putrefaction, and the fact that cholelithiasis may follow a typhoid infection, would go to prove the parasitic origin of lithogenous catarrh, which is the principle of the anatomical theory.

No definite cause for the condition of cholelithiasis has yet been accepted, and this subject waits further investigation.

Cholelithiasis is most common in persons above 30. It is rarely that gall-stones are found in patients before that age and more than two-thirds of the cases are found in women. This is thought to be due to tight-lacing, sedentary lives and pregnancy. These conditions predispose toward slowing of the bile current. Any interference with the free flowing of the bile will favor inspissation and precipitation of its constituents.

Brockband gives the following varieties of gall-stones: pure cholesterin stones, laminated chole-

*Read at annual meeting of the Calhoun Co. Medical Society.

sterin stones, common or gall-bladder calculi, pure bilirubin calculi, mixed bilirubin calculi, biliverdin and some other exceptional forms. They are of different sizes, shape and color; their consistency differs, some being soft and easily crushed, while others are quite firm. They differ in numbers from one to several hundred.

Where formed—Gall-stones are formed in the bile ducts of the liver (intrahepatic) and in the gall-bladder. Those found in the hepatic duct come from the liver and those in the cystic duct from the gall-bladder, while those found in the common duct have come from the liver or gall-bladder. Gall stones take a few months to become large enough to produce marked symptoms, and this period will usually be accompanied by some disturbance of the digestive organs, such as constipation, nausea, heaviness in the epigastric region, etc.

The acute symptoms of gall-stones appear suddenly and are due to the efforts of the bladder or ducts to free themselves of a calculus. It must be remembered that these stones do not always produce disturbances, for stones have been found with no history of biliary colic. In this there are paroxysms of colicky pain in the right hypochondrial region, and pain extending back to the shoulder blade, and nausea.

Calculi in different portions of the biliary canals produce different symptoms. Calculi lodged in the cystic duct or gall-bladder produce the characteristic biliary colic, but do not cause jaundice, for they do not interfere with passage of the bile into the intestines. Calculi lodged in the hepatic or common duct not only produce the characteristic colic, but cause a jaundice, a mechanical jaundice. The bile is backed up into the liver and then forced into the circulation. It is first discovered in the urine, then in the conjunctiva and finally in the skin over the whole body, and the stools are colored. This form of jaundice is frequently intermittent. Large quantities of bile appear in the stool suddenly; this is due to some movement of the stone, the ball valve movement of Fenger.

When a gall-stone obstructs the cystic duct the gall-bladder may gradually distend, not from bile, but from its own secretion, mucus, etc. The gall-bladder may distend 3 or 4 inches below the costal cartilages, where it may be palpated, and if it is tender and inflamed this can be aggravated by making firm pressure over the abdomen with the tips of the fingers just below the cartilage of the ninth rib (this is on about a line with the linea semilunares, right side), and then requesting the patient to take a long breath. By so doing the gall-bladder is forced against the depressed abdominal wall by the diaphragm, and the patient will complain of severe pain and catch his breath. When the gall-bladder is not distended or inflamed I do not think anything can be detected by manual examination.

This distended gall-bladder may become infected and a suppurative cholangitis follows. The symptoms of the condition are rigors and sharp rise of temperature. These rises of temperature are short and sharp, the temperature going as high as 104 and dropping again to 100. This range of temperature is very marked, and is spoken of as an "angular temperature." There is also pain in this region and a loss of weight follows.

These diseases of the gall-bladder do not respond to medicinal treatment. If a complete constriction of the neck of the gall-bladder exists the gall viscus becomes distended by its own secretion and may finally rupture or it may become gangrenous and a septic peritonitis follows. Biliary calculi may produce an ulcerative cholecystitis and finally escape into the peritoneal cavity. In rare instances they pass into the duodenum, colon, stomach or ulcerate through the abdominal wall, leaving a fistula. Ulceration of the gall-bladder into the duodenum, stomach or colon, or through the abdominal wall, is nature's method of safely relieving this diseased viscus. This happens only in a small percentage of these cases and is a dangerous remedy to wait for.

The other remedy resorted to is the surgical treatment, the technique of which is of comparatively recent date, but by its significant results it is destined to become an important factor in the surgical field. The practical operations devised for the relief of the biliary passages are, namely, choecystotomy, choledochotomy, cholecystenterostomy and cholecystectomy.

Mayo Robson advises operation in the following cases: In frequently recurring biliary colic without jaundice, in cases of enlargement of the gall-bladder without jaundice, in persistent jaundice which was ushered in by pain, painful seizures occurring, whether or not febrile attacks occur; in empyema of the gall-bladder; in abscess about the gall-bladder or ducts; in fistula cases, in phlegmonous cholecystitis and gangrene of the gall-bladder, in infective and suppurative cholangitis, and rupture of the gall-bladder.

The principal contra-indication to an operation is a haemorrhagic diathesis; severe jaundice

causes this condition, and when present the blood should be tested as to the time for coagulation, and if it does not coagulate quickly, calcium chloride should be given as recommended by Mayo Robson for the purpose of making the blood more plastic. When a severe icterus is present absorption is slow and the healing process is interfered with.

In connection with this article I wish to report the results of some experiments with the biliary flow.

I have selected 3 cases of different ages, namely 32, 47, 68, thus including a young, middle-aged and an old person. These experiments were made with a view of noting the amount of bile excreted during certain hours, its specific gravity, the effect that cathartics would have on the flow and the effect the discharge of bile would have on the patient, etc.

Case 1.—Mr. H., aged 32, a laborer, had suffered from a cholecystitis for some time.

A cholecystotomy was performed and a drainage tube inserted into the gall-bladder and allowed to remain there for 12 days. For the first five days the bile was measured at 9 p. m. and 7 a. m., and for the second five days it was measured every two hours. Calomel, podophyllum, gamboge, soda phosphate and salines were administered at different times during the period.

The following deductions were made as a result of the observations:

METHOD OF EXPERIMENTING.

Drainage Tube in Gall bladder, and Tube attached carrying bile to bottle.

More bile was excreted during the hours of rest, that is, between 9 p. m. and 7 a. m., than between 7 a. m. and 9 p. m.; a greater amount was excreted in the 50 hours of rest than during the 70 hours when digestion was most active.

The greatest amount of bile excreted in 24 hours was nine and one-half ounces; this was a day following the administration of one-half grain of podophyllum, followed by a sedlitz powder.

The amount of bile excreted gradually increased from 8 p. m. until morning.

Calomel administered with the podophyllum did not increase the flow over the podophyllum alone.

The gall-bladder will hold only a percentage of the bile secreted during the quiescent period.

Case 2.—Patient aged 68. Cholecystotomy with drainage tube inserted. The bile was measured every two hours for twelve days, beginning at 6 a. m.

Deductions: The least amount of bile excreted in any 24 hours was during the days following the operation, when little nourishment was taken.

The greatest amount excreted between any given time was between the hours of 4 and 6 a. m., and the smallest amount between 6 and 8 p. m.

A saline cathartic will increase the flow of bile in three or four hours after its administration.

Podophyllum will increase the flow in from 12 to 18 hours after its administration.

Specific gravity of the bile was taken four times a day and varied from 1009 to 1014.

Case 3.—Patient female, aged 47. Cholecystotomy and drainage as in the other cases.

The bile was measured every three hours beginning at 6 a. m.

Deductions: The largest amount excreted was at the hours of 3 p. m. and 6 a. m.

The greatest amount excreted in 24 hours was after the administration of a saline cathartic, sedlitz powder and Apenta water.

Podophyllum and soda bicarbonate will increase the flow.

The increase in the flow of bile after the administration of these cathartics, I think, was due more to the activity they produced in the portal circulation than to a direct stimulation of the liver cells.

Conclusions: The secretion of bile is continuous during the 24 hours.

The greatest amount passes into the gall-bladder between the hours of 1 and 6 a. m.

Only a percentage of the bile secreted during the quiescent period can be stored in the gall-bladder, and it is not a necessary appendage.

Certain drugs increase the biliary flow—chiefly podophyllum and the salines; calomel itself does not produce a noticeable increase; the most perceptible increase follows the administration of saline cathartics.

The specific gravity varies from 1009 to 1014, being increased after taking solid food.

DISCUSSION.

A. J. ABBOTT, ALBION.

In the operative treatment of the bile ducts I have been interested more in a literary than practical way, *i. e.*, I have never operated on a case.

But to us in general practice the diagnosis of cases demanding operation is of importance. We are all impressed with the diagnostic importance of colic and jaundice, but the operations of recent years have shown that other symptoms, mostly referable to the digestive functions, besides the signs of pain, tenderness, etc., are very important. Only in obstruction of the common or hepatic duct is jaundice an indication of trouble, and only as gall-stones pass through the ducts is biliary colic present.

It has been found by experiments that introduction into a healthy gall-bladder and ducts of pathogenic bacteria is not followed by infection so long as the normal free exit obtains; but when from any cause free draiage fails, infection occurs.

In forty-eight cases reported by Ochsner of patients operated on for disease of the gall-bladder and ducts, twenty-four had at the time of operation, or had had, appendicitis. Adhesions making partial occlusion of the ducts may result from appendicitis, salpingitis, typhoid fever or any other cause of peritonitis, thus favoring retention and infection of the hepatic products. A careful inquiry into the previous history in reference to these causes should be observed. I would mention lavage of the stomach as a means of relieving the pain of biliary colic. Removing the stomach contents relieves, in a measure, peristaltic effort and pain.

Although the experiments of Dr. McLean have shown that calomel is not an active cholagogue, yet I think some of us at least will not be deterred from using it in the so-called cases of biliousness.

I have been taught that calomel so increases peristalsis as to prevent the absorption of vicious matter, and by its antiseptic effect renders the alimentary tract sterile, and that it is for these reasons calomel is effective for good rather than by increasing the flow of bile.

O. S. PHELPS, BATTLE CREEK.

In the discussion of Dr. McLean's paper a very interesting thought relating to his observations in the use of calomel comes up, as to the real value of calomel itself. It is interesting to note that the salines have a much more decided effect upon the flow of bile than calomel, and one of our pet theories regarding the value of calomel has met with a decided Waterloo. However, the value of calomel along other lines seems very well demonstrated by some of our experiences as to its bacteriological effect, and in our hands no other remedy has proved so efficient in the control of decomposition in the alimentary canal, or in other words, has proved so valuable an intestinal antiseptic, as the free use of this classical old drug.

GRAND TRAVERSE COUNTY.

The Grand Traverse County Medical Society held its first annual meeting Jan. 7th, 1903, at which time the following officers were elected to hold office for 1903:

President—Dr. C. J. Kneeland.
Vice-President—Dr. J. M. Wilhelm.
Secretary—Dr. Frank Holdsworth.
Treasurer—Dr. F. P. Lawton.
Delegate—Dr. A. H. Holliday.
Elective Directors—Dr. Rosenthal Thompson and Dr. H. B. Garner.

After business meeting the association members and their ladies were entertained at a banquet at Park Place Hotel.

Following the banquet those present enjoyed an interesting program, as follows:

1. Toastmaster's address .....Dr. A. S. Rowley
2. Solo .....Mrs. A. S. Rowley
3. Reminiscences of Practice of Medicine in Early Days of Traverse City.... .. ..Dr. Ashton, Dr. Kneeland
4. Solo .....Dr. A. H. Holliday
5. The Doctor as a Politician..... .....Drs. Chase, W. E. Moon and Lawton
6. Career of a Doctor in Public Institute Life .....Dr. A. S. Rowley
7. Struggles of a Young Doctor..... .....Drs. Holdsworth and Winor
8. Solo .....Mrs. A. H. Holliday
9. Army Doctor's Life .....Dr. Wilhelm
10. The Doctor's Wife. Her Joys and Sorrows .....All the Ladies
11. Pleasant and Amusing Incidents in a Doctor's Life .....Drs. Garner and Kemp

The meeting was one long to be remembered because at no time in this city's history have the physicians enjoyed themselves together in a social way as thoroughly as they did at this meeting, and it marks the beginning of greater interest in our society.

O. E. Chase, Secretary.

JACKSON COUNTY.

The annual meeting of the Jackson County Medical Society was held Jan. 6, 1903. The following officers were elected:

President—N. H. Williams.
Vice-President—D. E. Robinson.
Secretary—R. Grace Hendrick.
Treasurer—F. W. Roger.
Delegate—D. E. Robinson.

The address of the retiring president, Dr. A. E. Bulson, comprised a review of the history of the medical profession of Jackson County.

Dr. F. A. Baldwin, of Ann Arbor, read an article on "The Etiology of Carcinoma With Special Reference to the Parasite Theory."

Dr. H. O. Walker, of Detroit, read a paper on "Observations Upon the Technique of Abdominal Surgery."

Dr. H. S. McGee on "Irrigation Treatment of Gonorrhoea."

The annual banquet in the evening was largely attended.

R. Grace Hendrick, Secretary.

LAPEER COUNTY.

The monthly meeting of Lapeer County Medical Society was held at the parlors of the Graham House, at Lapeer, Wednesday, Jan. 14, 1903.

PROGRAM.

1:00 P. M.

1. President's Address,
   Hugh McColl, M. D., Lapeer
2. Is Appendicitis More Frequent Now Than Formerly?
   John S. Caulkins, M. D., Thornville
   Discussion opened by C. A. Wisner, M. D., Columbiaville.
3. Neurasthenia, Wm. J. Kay, M. D., Attica
   Discussion opened by Geo. W. Stone, M. D., Metamora.
4. Exopthalmic Goiter,
   Peter Stewart, M. D., Hadley
   Discussion opened by Geo. W. Jones, M. D., Imlay City.
5. Vaccination, John V. Frazier, M. D., Lapeer
   Discussion opened by S. A. Snow, M. D., North Branch.
6. Fibroids of Uterus,
   H. E. Randall, M. D., Lapeer
   Discussion opened by A. Price, M. D., Almont.

H. E. Randall, Secretary.

ST. JOSEPH COUNTY.

The St. Joseph County Medical Society met at Three Rivers, Jan. 7th. The meeting was held in the rooms of the Amity Club, whose officers kindly tendered us the use of the club. The meeting was well attended. Seven new members were added. Dr. Knowles was elected delegate to the State Society.

The next meeting will be held at Mendon, Feb. 8th, 1903. All former officers were re-elected.

Fraternally,

J. R. WILLIAMS, Secretary.

VAN BUREN COUNTY.

The monthly meeting of the Van Buren County Medical Society was held in Hartford, Tuesday, January 13th, 1903, at 10 a. m. The following papers were read:

"Clinical Temperature," Dr. L. G. Rhodes.

"Infant Feeding and Milk Modification," Dr. Loren Curtis.

"Auto-intoxication as a Cause of Gingivitis," Dr. J. C. Maxwell.

General discussion.

N. A. WILLIAMS, Secretary.

WAYNE COUNTY.

SHOULD THE SPECIALIST DIVIDE HIS FEES?

DON M. CAMPBELL,
Detroit.

When our worthy president, Dr. Tibbals, and his able coadjutor, Dr. Moran, asked me to deliver a short paper under the above caption, I felt and do still feel that the subject is an exceedingly delicate one, and I would like to say in the beginning that, whatever the views promulgated and opinions advanced may be, they are entirely impersonal and must in all justice be considered in the light of a desire to further the best interests of the medical profession as a whole and not as applying to any individual case.

It has been said that when a certain historian, engaged in detailing the progress of the inhabitants of the Emerald Isle, came to the chapter entitled "Snakes," he very briefly summed up the matter by remarking that "In Ireland there are no snakes." So, too, we might briefly state the case as far as Detroit is concerned that there are no specialists' fees in this city worthy of being divided, and, indeed, we would not be far wrong in the majority of cases.

The term "specialist," I apprehend, should in this connection be meant to apply to any medical man who is devoting his energies to the pursuit of a line of work in which the general practitioner feels a necessity for consultation or help in the management of his cases. The surgeon, the laryngologist, the rhinologist, the otologist, the dermatologist, the pediatrist, the gastro-enterologist, the proctologist, the ophthalmologist, the gynecologist, the electro-therapeutist and the consultant in internal medicine, are all included under the generic term "specialist."

There are two standpoints from which this question can be viewed by both specialist and general practitioner, viz.: First, from a purely professional, and, second, from a financial standpoint.

In other words, is the proposition before us for consideration to-night a good and proper thing, firstly, from a professional, and, secondly, from a financial point of view?

These two viewpoints would at the first blush, perhaps, appear to be entirely incompatible, and yet a closer scrutiny of the situation will show them to be entirely in accord.

It can, I think, be stated, without fear of successful contradiction, that the division of fees by the specialist and the general practitioner who has referred the case to him, when the question is viewed from the elevated moral ground of truly ethical and high-minded professionalism, cannot but be unequivocally condemned if those passing judgment on the subject were swayed alone and only by the high ideals which have been developed in the best elements going to make up the profession.

Nay, more, it can be affirmed that the general average of moral development in the profession, as a whole, must condemn for all time this bartering for gold that most precious thing in the treasure house of all physicians—the trusting patient's best confidence.

A patient goes to his family doctor for advice as to whom he shall consult for the management of his case, if it be beyond the skill of his physician; or the physician, realizing that he himself has not the facilities for the proper management of the case, says to the patient: "Go to Dr.

*Read before the Wayne County Medical Society, Detroit.

So and So, who is better equipped to do this work for you than I."

In the majority of cases the patient does not expect to pay for such friendly counsel, nor from a purely professional standpoint should it be demanded of him nor taken out of him in a roundabout way.

In many instances the specialist finds it necessary to refer a patient back to the general practitioner for further continuation of constitutional treatment. In such a case should the patient be again soaked for another divvy?

So much for the question viewed from a purely professional standpoint.

Is the division of fees a good financial proposition for the general practitioner or for the specialist?

There can be no controverting the fact that, in these piping times of great prosperity, as well as in the more gloomy days of financial depression, the average man who has to have some professional work done goes about it in much the same way as in every other transaction involving a financial consideration. The question of cost plays a very important role.

To illustrate, let me give a hypothetical case: In a certain community there are two general practitioners of about equal standing in the profession, Dr. A. and Dr. B., and they have somewhat about the same amount of business.

A patient comes to Dr. A. and states that she wishes to consult a specialist about the necessity of having an operation performed. The doctor takes an interest in her case and sends her with a letter of introduction to the specialist whom he is in the habit of patronizing.

The woman goes to the specialist, she is examined, and is told that she is in urgent need of surgical treatment.

This part of the transaction being settled, the question of fees comes immediately to the surface.

The specialist, remembering that Dr. A. always demands a percentage of his receipts from business referred, makes a rapid calculation in mental arithmetic, something like this: "My fee, $100, plus Dr. A.'s rake-off, $50, is $150," and he says to the patient: "This is a $200 operation, but on account of your coming from Dr. A. I will make the whole thing $150 and do for you a good job."

The proposition is accepted, the work is done, and everybody is satisfied, at least temporarily.

But has this been a good, square transaction? Well, no; anything that cannot bear the searchlight of good, above-board dealing can be set down as wrong and in reality dishonest. Neither Dr. A. nor his specialist confederate would for one moment dare to let the patient or her friend know the inside workings of that transaction.

Dr. B. has a similar case, but, not being a "rake-off man," he sends his patient to a specialist who does not have to employ mental arithmetic in his calculations and charges the patient $100. Again all is well.

A third patient, from the same locality, wanders into the office of Dr. A.'s consultant with a similar condition of affairs, and in this case the specialist is not weighted with the mental strain of a numerical calculation induced by Dr. A.'s letter of introduction, and charges this patient the legitimate fee of $100. Again everybody is satisfied until, at some tea fight, these three ladies get together and begin to compare notes, the result of which is that they all think there is something queer about the transaction, and, if the story be frequently enough repeated, very soon Dr. A. will cease to have the opportunity to throw business to his mathematical consultant, and the people will not be slow to see that it is cheaper to go directly to a specialist instead of first filtering through the hands of such a family doctor, or at least they will be sure to avoid a general practitioner who has a reputation for sending his patients to the "expensive" specialist.

So one cannot but feel that from a financial, as well as from a professional viewpoint, the division of fees is not, to say the least, a success.

Interested in the proposition before us to-night are three people: (1) the patient; (2) the general practitioner, and (3) the specialist, and perhaps it might be well for us, ere finally making up our minds as to the proper way to view the matter, to look at the question calmly and dispassionately from the viewpoints of each of these component parts of the transaction.

The patient, when he or she places enough confidence in the family doctor to seek his advice as to what specialist shall be consulted, feels that the doctor will give the best advice he can and refer her to a man who will do the work in a satisfactory manner and at a cost commensurate with circumstances and financial standing.

If this system of the division of fees should become at all universal, the general practitioner, being only human, as we all are, would, in the course of time, have his judgment warped in favor of the specialist who paid the highest percentage, and not in favor of the one who would do the work best and at the same time have some consideration for the financial status of the pa-

tient. In this connection I do not wish to be understood as saying that all would do this, but undoubtedly, in the course of time, with the restraint of custom removed, many would.

The conclusion is perforce borne in upon us that from the standpoint of the patient the division of fees would be a decidedly undesirable thing.

Viewed from the side of the general practitioner the proposition looks something like this:

There are many general practitioners who would not be warped in their judgment by the money consideration in the case, but all must of necessity admit that there are many in the ranks of the profession who would be undoubtedly influenced by the wiles of the seductive $25 or $50 rake-off, and the quest for operative cases would be more than even now is the case.

Internal medicine and the conservative treatment of many diseases now well handled by such means, would be handed over to the surgeon by those over-zealous advocators of surgical intervention, and many unnecessary operations would be performed.

Here it seems to me is the proper place to refer to a phase of the subject that should not be neglected in the discussion, and that is that the general practitioner has some valid claims to the patient even after he has been turned over temporarily to the specialist.

The latter should feel it his duty to send the patient back to the general practitioner as soon as he is through with his special management of the case, and any specialist who does not perform that courtesy to his consultant is unworthy of support at the hands of the profession at large.

There are some instances where the general practitioner has been put to trouble and expense in handling the patient before, or accompanying him to the specialist, in staying to see the patient through the operation, rendering assistance or administering the anesthetic.

For these services the general practitioner should be paid. Right here is where the specialist who pays commissions for business sent him has his back door escape of justification and works it for all it is worth.

Nobody will deny that general practitioners should be paid for those services, but the crucial point is, who should pay him?

Why, undoubtedly the individual for whom he performs the service, viz., the patient.

If the general practitioner is not up to his business enough to make the charge, he should not look to the specialist to make good his lack of financial acumen.

The patient should pay, and he should know for what he is paying in such a case.

So from the standpoint of the general practitioner who is onto his job from the financial side of the question, one must say that he should be paid for whatever services he actually performs, and that for such services the patient should knowingly pay.

From the standpoint of the specialist any transaction calling for the underhand paying of a commission looks like an undesirable performance, for he must either give away money which he feels he has honestly earned by his skill, or he must surreptitiously levy a tax on the unsuspecting patient. Either horn of such a dilemma is distasteful to a self-respecting and upright man, I care not whether he calls himself by the name of general practitioner or specialist.

In the performance of professional work in medicine and surgery there is a certain unwritten law of action which should be lived up to by every self-respecting member of the medical profession, and while this standard is very difficult to definitely lay down in rules and regulations, still its operations are as unvarying as the laws of chemistry.

One of these standards of professional attainment is that no reputable physician shall advertise nor employ any advertisers to help sell his professional wares, excepting that which legitimately comes to him through the performance of good, conscientious, hard work, and the building up of his reputation therefrom.

In business there are many means of advertising which are not open to the use of reputable and self-respecting medical men.

Such means are newspaper and magazine advertising, and the employment of such means as band wagons and tail-board oratory to the gaping and wide-mouthed credulity of the average man.

Nor is it legitimate that a doctor should employ paid agents to go out and drum up business for him.

But will you please tell me what earthly difference there is between a doctor paying a regular commercial drummer to go out and solicit trade for him and employing another doctor to drum up business for him at a 50 per cent. commission?

There is not one iota of difference, excepting that the man who goes to the newspaper, inserts a glaring advertisement and promptly pays the paper for this advertising matter, is performing a legitimate business transaction in an aboveboard and honest manner and he is not prostituting himself, his profession, and the general practitioner by attempting to do the same thing under

the cloak of hypocrisy, appearing to be one thing and in reality being another, using the cloak of professional membership to hide his shady work.

No, ladies and gentlemen, the comparison is altogether in favor of the out-and-out quack who pretends to be nothing but what he really is.

We have at our very doors an example of what the profession at large think of these practices.

In Mt. Clemens the profession for years was hampered by the paying of fees of 50 per cent. to drummers whose business it was to meet patients on trains coming into the city and steer prospective patients to their respective doctors.

For this service the drummer received 50 per cent. of fees paid.

About a year ago nearly all of the physicians of Mt. Clemens banded themselves into a society whose object it was to do away with this nuisance.

Some, however, did not join the society, and still continued the nefarious practice, and were somewhat severely dealt with by the Michigan State Medical Society at its recent meeting in Port Huron for so doing.

It is said on good authority that the American Medical Association has refused to hold a meeting in Hot Springs, Arkansas, because the profession of that city was so riddled by similar practices.

So you see both our state and national bodies condemn in no uncertain tones such practices.

Are we to-night chasing a myth? Is there any such a thing in Detroit as the division of fees by specialists with general practitioners?

Let me in answer to this question briefly outline two bits of conversation which I recently heard, one through a professional friend who I am glad to say was proof against the wiles of such bribery, and the other through a professor in one of the largest universities in these United States.

CONVERSATION NO. 1.

This doctor was met on the street by a specialist of this city, who said: "Doctor, do you ever get any money for sending patients to specialists in my line?"

"No, I do not," replied the doctor.

"Well, I tell you, anything you bring me will net you 50 per cent. of all I receive from the case," was the final remark of this enterprising specialist.

CONVERSATION NO. 2.

Occurred on a railroad train coming into Detroit and was between the professor and an alumnus of the aforesaid university.

"Well, doctor," said the professor, "where are you bound for?"

"I am taking a patient into Detroit for operation," said the doctor.

"Why do you not bring your cases back to your alma mater?" interjected the professor.

"Well, I'll tell you, professor, why I don't do it: If I take a patient to you at the university, that is all the good I get out of it, and you get nothing, and the patient is a charge on the state."

"Now, this man is willing to pay $100 for his operation, and I will go home with $50 of it in my pocket."

Could there be more positive proof that such a thing is actually among us here in Detroit?

From whence has this nefarious practice sprung?

As I have said before, there are three parties to the transaction, and we must look to one or all of these to explain its presence among us.

The patient's part in the transaction can be very quickly dismissed, as of course nobody would perpetrate a fraud on himself, especially one which is most expensive and dangerous.

So the honor of originating such a procedure must lie between the rake-off general practitioner and the commission specialist.

In order to determine which of these two worthies is the original in the transaction I have indulged a little in statistics.

I have gone over my case books for the last 12 years and therein I find that during that period I have made records of 3,588 patients referred to me by 395 different doctors.

Now, then, from among so many general practitioners sending me so many patients, you would expect to find a goodly number demanding a division of fees if it was at all a common thing for the general practitioner to make such a demand, but when I tell you that during all those years and from among all those doctors bringing such a number of patients, only one single doctor has demanded a commission, you will readily realize that it is not from among the ranks of the general practitioner that this practice has originated.

We are then forced to the conclusion that the idea must have originated in the fertile brain of some specialist who was willing to take this unfair advantage of his more honorable and square dealing brother; furthermore, there is no doubt that the thing is perpetuated by forces emanating from the same fruitful source, abetted and helped by a general profession which to some extent at least has been prostituted by the commission specialist in the too ardent pursuit of the almighty dollar.

For all this mess is there any remedy, any pool of Bethesda into which we can dip the dirty linen and make it clean, pure and white again—any cleansing blood that can be shed for the renegade doctor who is not true to the traditions of his profession?

Ah, there is the rub. It is easy to be analytic but hard to be synthetic, easy to act the part of the iconoclast, but difficult to be a reconstructionist and repair the damage done.

I do not think I can do better in this connection than to quote from a paper by G. Frank Lydston, of Chicago, entitled: "Further Remarks on the Bisection of Fees, Surgical Drummers and Drumming Surgeons," in which he sums up the financial relationship of patient, general practitioner and surgeon as follows:

1. "A general practitioner and a surgeon may form a co-partnership out and out and announce the fact, presenting joint bills for services.

2. "The specialist may present a joint bill which claims a fee for combined services, the general practitioner and surgeon each receiving his fair and just proportion of the fee, adjusted according to services actually rendered by each.

3. "The general practitioner may conduct all the financial negotiations with the patient, call a surgeon to operate and pay him whatever is agreed upon between the two physicians. Here the general practitioner presents a bill which is understood by the patient to be the bill for joint services.

"If the patient is satisfied with the total amount he is not likely to concern himself with the arrangement his physician has made with the operator.

"If the surgeon is satisfied with his fee, it is a matter that concerns nobody else.

4. "There are cases in which the general practitioner may render honest and competent assistance to the surgeon. Here a joint bill should be rendered."

The only criticism I should make on these conclusions is that in division No. 3 the bill should detail the amount paid to the surgeon for his services.

In conclusion I would say to the patient, avoid by all means the "divvy doctor" and his "commission consultant," because they will do you good and brown.

To the specialist I would say that the way to build up an enduring and steadfast clientele is to not only do good work for your patrons, but send them away satisfied with the financial as well as the professional side of the transaction.

To the general practitioner I would say, do not betray the best interests of our noble profession for a few paltry "divvies" offered by some designing specialist who cares not an iota for you excepting for what he can get out of you, and, above all, do not forget that as far as Detroit is concerned, "There are no snakes in Ireland."

DISCUSSION.

EMIL AMBERG.

There seems to exist some hesitancy to open the discussion on the subject. I am rather surprised that a paper of this character is read at the present time. Dr. Campbell said that a reputable physician should not advertise. Recently, a college professor told a colleague that the specification of his practice on the window savored too much of commercialism. He was told that it did not more so than the advertising of a college professor in college announcements and hospital reports. The professor said he never thought of it in that way. Well, he may think a little more. Dr. Campbell spoke of drummers, paid and unpaid. What are many graduates else than unpaid drummers? Somewhere they have been called suckers. I feel very keenly on the subject. The college professors steal the bread out of our very mouths. I agree with the doctor that fees should not be divided, and I do not think that the practice is very much indulged in, in Detroit. The attitude of the profession has been defined by a resolution of the house of delegates of the American Medical Association, if I am correct. First, let the members of the profession be not only physicians, but also gentlemen, and there will be no more occasion for a discussion of this character, which seems to me to be somewhat premature. I almost feel like suggesting that the discussion be postponed for five years.

W. T. CODY.

I sometimes wonder whether we have any real specialists among us—that is, those who confine themselves wholly to their specialty and do not encroach more or less on the work of the general practitioner, although personally I have never had any unpleasant experience with those whom I have called in for special work.

When we hear so frequently of this specialist in eye and ear treating such general diseases as typhoid fever, and another specialist in surgery or skin diseases treating pneumonia, etc., we can scarcely be blamed for desitating about sending

our cases of ovarian tumor, mastoiditis, etc., to the specialist, and, unfortunately, our patient is the one who is most apt to suffer because of this lack of confidence. Let the specialist confine himself wholly to his speciaty, and then resolve that there shall be no divvy of fees on the work he does.

H. W. LONGYEAR.

I wish to congratulate the essayist on the excellence of his paper and compliment him for the courage he has shown in bringing this subject before us.

In this age of sharp competition many would-be specialists find the old way of advancement by means of excellence of work and thorough preparation too slow, and so they resort to this shoddy method to get business quick. It no doubt reverts to their advantage for a time, but in the end it must necessarily be disastrous not only to the physician who stoops to it, but to the whole profession as well, as he will sooner or later be held in contempt for it by his professional associates, and the moral tone of the profession will be lowered and its influence lessened among the people. To divide fees without the knowledge of the patient is either right or wrong—honest or dishonest. The American Medical Association has declared in no uncertain terms against it, and this society should do the same.

In my practice I have encountered very few general practitioners who have asked for a division of the fee, but a number of general practitioners have told me of having received offers from certain surgeons to divide fees if they would send their patients to them, so that I think the evil starts from the specialist and not the general practitioner.

L. J. HIRSCHMAN.

I would like to suggest a remedy for this condition of affairs. We must strike at the root. The trouble is that there are too many practitioners, and they are not properly paid. I would submit four remedial agents, which, properly combined, will cure the condition. First, there are too many weak medical colleges. The State must raise both the entrance requirements and the graduation requirements as well. This would shut off the enormous flood of poorly-equipped men, who, failing to acquire a legitimate income from their practices, must come to us, begging some of our surplus (?) to help them out. Second, we must require every graduate, no matter where from, nor what college has issued him a diploma, to pass a State Board examination. Thirdly, the generaly practitioner must receive proper remuneration for his services. A surgeon will receive upwards of $150 for an operation for appendicitis, which requires but three weeks after-treatment, and that in a hospital, while the general practitioner will treat a typhoid patient for eight weeks, traveling miles in all kinds of weather and carrying all the *anxiety* and care, and if he gets seventy-five or a hundred dollars, the patient thinks he is paying an enormous fee! Lastly, if you general practitioners would send *every patient* his bill *every thirty days,* as I do, and insist on the payment of the *entire bill* (not shaving off a third or a fourth for "spot cash") your incomes would be more in proportion to the work done, and the sorry spectacle of auctioning off your consultation and operative cases to the highest bidder in order to make both ends meet, would be a thing of ancient history.

J. H. CARSTENS.

Every physician on graduating takes the hypocratic oath, "that the highest ultimate good of the patient should be his constant endeavor," and every physician who asks for a percentage or who pays a percentage breaks that oath and is a perjurer, because the practitioner who takes his patient to a specialist who pays a percentage breaks that oath because he does not take his patient to that *specialist who is the best,* because the best do not pay a percentage, but he takes his patient to some second or third class man or some one who wants to establish a reputation; some specialist who has taken the six weeks' post graduation course and now blooms out as a specialist. Not only that he takes that at the start, but he grows; where he first wants twenty-five per cent., he wants fifty per cent., he wants half the fee, he wants three-quarters of it, and if the first man rebels he goes to a poorer stick who is willing to give more. It also grows in another direction. In cases that he never thought required the services of the specialist, all at once require consultation and perhaps operation. The patient who can pay a moderate fee, all at once is found to be able to pay a very large fee, and so it goes on from bad to worse. Patients get the poorest service for the biggest price. They are robbed; it is downright swindle of the worst kind, and no reputable physician will submit to that. But they are known; the man who pays percentage and the man who asks percentage,

They are spotted, you can point your finger at them, and it is being done, too. They soon reach the limit.

As I have given up a large general and obstetric practice, it is distributed all over the city among the physicians, and they are now receiving a percentage in advance. They are every year taking in more or less because *I am not competing with them.*

The doctor from the country who brings a patient from a distance certainly is entitled to a fee for bringing the patient here, but the patient must pay him, and *he must make* the patient pay. It is perfectly absurd for him to do it for nothing. He will get no thanks for it, but if he is afraid to ask for it, I will help him. If people cannot pay much I am willing to make my fee smaller in order that he can get pay for the service he does, but I want the patient to pay him, directly, honestly, straight and above board.

I want the fee which is just myself, and according to the patients' ability, as near as I know their financial standing.

This question on division of fees is a very serious one indeed. We ought to uphold the honor and the dignity of the calling. There are some things in life which are worth more than money. *One is professional honor.*

MORTALITY IN APPENDICITIS—ITS CAUSE AND LIMITATIONS.

A. J. OCHSNER, CHICAGO.

On December 18, Dr. A. J. Ochsner, of Chicago, read a paper on "Mortality in Appendicitis —Its Cause and Limitation." He said that all cases of appendicitis should be operated on during the first twenty-four hours, if possible. After such a period it is not always advisable. He cited several cases which he believed to have been lost by operation, due to the additional traumatism in an already inflamed region. In such cases the author believes that nature, if favored, will often do more towards a cure than can an operation. There is no place in the abdomen which is so capable of taking care of the infecting organisms as is this region, when infected, if the omentum is allowed to seek the point of infection. This is the reason why cathartics and food should be withheld so that the omentum is not obliged to seek several points of infection after the bowels have thrashed about and distributed pus throughout the abdominal cavity. The treatment advised is to operate when you think an operation will be beneficial, during the first twenty-four to thirty-six hours. After that time the stomach should be washed out if there is nausea, and all food *per orem* should be withheld. Nourishment *per rectum* is given. As soon as the severe inflammatory symptoms subside, an operation is considered. The author showed, by charts, that there is a marked diminution in leucocytosis under this "starvation" treatment.

Dr. Ochsner believes that his "starvation" treatment has been misunderstood, hence the unfavorable reports from many observers. Under his personal supervision the mortality of his cases has been greatly reduced.

DISCUSSION.

ANGUS M'LEAN.

Everybody is agreed that the proper thing to do in appendicitis, up to the first three days, or where the disease is confined to the tissue of the appendix, is to remove it. It requires judgment when the appendix has ruptured and an escape beyond the walls of the appendix has taken place. He has had little experience with the treatment advised by Dr. Ochsner, but hopes that it will reduce the mortality of appendicitis.

J. H. CARSTENS.

The subject resolves itself around what is called rupture—whether one can diagnosticate a ruptured appendix or not. Among the general practitioners an erroneous impression of the treatment has gone abroad. The result is that the treatment is being attempted all over the country, and the mortality is increasing. Eight or nine years ago it was universally admitted that the correct and only treatment was immediate operation, as soon as the diagnosis was made. The mortality was low. Then this starvation treatment appeared, and under its usage statistics will show that the mortality has been higher. Dr. Ochsner has answered this by saying that the men using it have not known how to treat such cases according to the starvation method. They have either given the patients something to eat, or did not wash out the stomachs, and there has always been some excuse. These are facts. The patients are allowed to jog along until the case becomes desperate. The case is then operated on and the patient dies, and of course it is the operation that is at fault; it is never the starvation treat-

ment. Dr. Ochsner is now trying to educate the physicians of the country to carry out this starvation treatment properly. No doubt, if carried out in some hospital and under Dr. Ochsner's supervision, the treatment is good, but my objection is that it goes out to the general practitioner as a good method of treatment. If the profession would know that appendicitis is a surgical disease and that it should be operated on promptly, the mortality would be far less than it is now.

T. A. M'GRAW.

A trial of the treatment, after having heard it advocated by the essayist, resulted fatally in three out of four cases. He is not certain that the treatment was properly carried out, and proposes to test it further under more favorable conditions. The treatment has the effect of preventing early operations, and in so far the idea does an infinite amount of damage. His feeling has been that wherever there is a gangrenous, or perforated appendix, the pus within should come out, and the sooner the better. It would be a great mistake if aught that has been said should lead to the result of postponing operations, that should be made, until the septic stage is reached.

H. O. WALKER.

Having been a witness a number of times to Dr. Ochsner's operations, there can be no question about the statistics. They are honest, truthful statistics. The profession, evidently, throughout the country, did not interpret correctly, and that is where the difficulty has arisen in regard to the early operation recommended by Dr. Ochsner. There is another thing to be taken into consideration: it is the technique. Dr. Ochsner's technique is ideal; that is undoubtedly wherein lies his great success in his operations. There are, undoubtedly, just as Dr. McGraw has said, those of us who have tried Dr. Ochsner's treatment and have not tried it right. Dr. Walker feels about the matter just as Dr. Carstens has felt, but there cannot be any question about these staistics. Dr. Ochsner tells us the truth. The general practitioner should understand that Dr. Ochsner says to operate early, and the mortality is almost nil.

E. G. KNILL.

It must be decided whether the germs are going to spread throughout the abdomen. If it is certain that there is a gangrenous appendix, one cannot understand that a patient should live unoperated upon. He does not believe any treatment of starvation would help such a patient.

J. FLINTERMANN.

If we have an uncomplicated case of appendicitis that has come to our hands within the first few hours after the first symptoms have shown themselves, if we follow Dr. Ochsner's recommendations we shall not make any mistake in consenting to an early operation. The general practitioner who has the good luck to be called in shortly after the first symptoms appear will know whether the case is fit for an operation or not at that time. The starvation treatment is certainly not of any harm to be instituted before you call in the surgeon. For instance, the country practitioner, who is not able to make an operation right away, if he follows the lines laid down by Dr. Ochsner will certainly make no mistake. If he puts the patient to rest and does not give him anything to eat nor drink, and gives him no cathartic, the surgeon will find that man well prepared for the operation.

DR. LETTS.

He has followed the operations of Dr. Ochsner for ten years or more, and has no fault to find. The general practitioner has not a thorough knowledge of what Dr. Ochsner wishes him to carry out. The doctor has practised the methods, and has not had one fatal case.

The union of the profession in Wayne County has been so successful and harmonious that the size of The Wayne County Medical Society has demanded a hall for meetings. The general meeting of Dec. 11 was the first to be held in the new rooms in the Stevens Building, when, after the regular order of business, a buffet lunch was served. On Dec. 8 the first section meeting in the new section room was held.—It has been most gratifying to note the enthusiasm which has been shown in all of the meetings since the reorganization, as expressed by the average attendance, the high standard of the papers, and the lively discussions. Not only has this been true of the general weekly meetings, but also of the section meetings. May it continue.—The total membership of the Society is now about 300, with new enrollments being made daily, so that by

the end of this year it is expected the 500 mark will be reached.

At the general meeting of The Wayne County Medical Society held Dec. 18, the following report of the committee on legislation was received and accepted:

The Wayne County Medical Society, of Detroit, has appointed a committee on medical legislation in order that the medical profession of the County of Wayne can keep in close touch with any legislative measures which may affect the public and the medical profession. Undoubtedly measures will come up during the next session of our legislature which will demand the attention of the medical profession. One of the great objects of the reorganization of the State Medical Society will be furthered by keeping the medical profession of the State continually and thoroughly informed on matters which enlist their interest. In order to accomplish this purpose the committee on medical legislation of the Wayne County Medical Society recommends:

That communications be sent to all other county societies in the State with the request that these societies appoint similar committees.

FRANK D. SUMMERS, Chairman,
E. L. SHURLY,
EMIL AMBERG,
Committee.

HUGH MULHERON,
Secretary.

Communications.

THE M. D. TITLE IN GERMANY.

In the January issue Dr. George Dock tells us of the new requirements in Germany to practice medicine. One understands that the title of "Approbirter Arzt" is sufficient for the medical practice; and perhaps the readers of this journal would like to know what is needed to receive the title of Doctor Medicinæ.

The trouble and costs summed up are: A kind of a sham examination, 440 mark for the university (about $110), the costs of printing a dissertation, and a fine dinner after the defense of a thesis.

The "Approbirter Arzt" who wants to receive the degree of M. D. (de promovendus or doctorandus) commences with giving to the rector magnificus a self-made, clearly written dissertation (essay) about a medical subject, anything he chooses. By the way of a post-scriptum, the candidate has to add a short curriculum vitæ, and his religious creed besides the social position of his parents. Furthermore he has to show from which clinics or laboratoria he has gathered the contents for his essay and who assisted him by the work, all this in the form of a sworn affidavit. This has to be accompanied by 220 marks ($50).

As a rule the doctorandus learns after a couple of days that his essay is accepted, and he is invited by the rector magnificus for a colloquium. That colloquium is amusing.

In some room, the doors closed, the candidates and jury members relish a fine repast and some bottles of wine, offered by the rector magnificus. One is there all "en petit comité:" three members of the faculty and two or three doctorandi.

According to the rules the conversation has to be about medical subjects. Pro forma, the jury gives to the candidate a "satisfecit," and the candidate has the kindness to offer once more 220 mark to the faculty and 100 mark to his publisher for the pleasure of printing 315 copies of his essay for the members of the faculty.

From now on, the doors of the Aula are open to him, to solemnly defend his essay and to receive as a reward for his work a big red tin box with his diploma in it. This third and last part of the promotion is the disputatio.

It's noon; the fixed hour for the dissertation. First come some students, then the promovendi in evening dress and white gloves, and followed by their three opponents. These opponents, one understands, are not dangerous. As a rule they are three good friends, who the day before have dined with the candidate and received in writing the objections to be made during the essay. However, any one from the auditorium has the right —ex corona—to take the stand and harass the candidate with questions. Hardly ever do they make use of this right.

Silentium! There comes through the big door a man with long, white hair, dressed in a red mantle. It is the rector magnificus. He takes his place in an easy chair near the podium, where our candidate is already seated, who now addresses the rector as follows:

"Tentamine physico, examine rigoroso, feliciter superatis jam restat, ut summi qui sunt in medicina et chirurgia honores in me transferantur; quare dissertationem scripsi germanica lingua thesesque apposui tres quas ad defendendas peto

abs te Decane spectatissime. ornatissime ut mihi lingua germanica uti liceat."

(The promovendus f. i. be a Russian.)

And what will the Decamis ornatissimus answer but:

"Autoritate facultatis medicae do tibiveniam quam petüsti."

The reader will observe that the candidate, after having called his dissertatio scripta in lingua germanica, afterwards cunningly makes an allusion to: theses tres quas apposui. These theses tres are three of his own choice, which the doctorandus adds to his essay and which are the only ones to be discussed.

Then, without caring a bit for his essay, the promovendus now says aloud:

"My first thesis is, that in the treatment of syphilis, injections with insoluble mercury salts are preferable to all other ones."

The first opponent now takes the stand opposite the podium from where the doctorandus has flung his thesis into the world. He has learned his objections by heart, of course, and it is really amusing to see how he attacks.

The defense, which has been prepared in advance, is no less clever. It is even of such a nature that the opponent can say only:

"Well! I am satisfied with your answer in all respects."

So it goes with the two other theses. Not without pretense the doctorandus now addresses respectfully the rector, to whom he says the following:

"Tacente corona, adversariis devictis peto abs te, decane spectatissime, ornatissime, ut summos qui sunt in medicina et chirurgia honores in me transferas."

Whereupon the Decanus ornatissimus answers gravely:

"O candidate ornatissime et dignissime, tentaminibus et examine rigoso feliciter absolutis, petiisti ab ordine medicorum ut summi in medicina et chirurgia honores in te transferantur. Dissertatione cum thesibus contra virorum ornatissimorum argumenta disserte docteque defensis, nihil obstat enim quin lauream doctoris aspicaris. Priusquam autem haec tibi tradi possit, necesse est jurejurando te obstringi in cuius praecepta strictissima a te observanda curatis."

Hereupon the doctorandus declares with a firm voice:

"Jusjurandum Doctoris medicinæ (Protestants and Roman Catholics).

"Spondeo juroque, non mei me commodi causa medendi artem factitaturum, sed ut Dei gloriam celebrem, ut hominum tuear salutem, ut quantum queam, ipsi doctrinæ incrementi afferam; cuncta medici munia, summa cum fide et religione, quantaque valeam, peritia et prudentia executurum; laborantium cuivis, nullo discrimine aut delectu, ambitione nulla, sive sit inops sive dives, pari industria subventurum; nullius unquam hominis vitam ancipiti tentaturum experimento; non ad vana aut sordida medicinæ usum deflexurum indefesso studio in exploranda cognoscendaque arte perseveraturum; socios artis humanitur, amiceque et uti ipsa artis dignitas postulat, tractaturum promptissimoque animo neque ullo utilitatis propriae respectu, quidquid possim facultatis, cum illorum studiis in aegrotantium saultem consociaturum, omninoque id operam daturum, ut, quam profiteor artem ad religionis sanctitatem adducam. Ita me Deus adjuret et sacrosanctum ejus Evangelium."

The Jews say, instead of the last sentence:

"Ita me aeterna salute impertiat Deus."

The turn comes now to the rector, who answers in a paternal style:

"Quod felix faustumque sit quod patriae prodesse jubeat Deus optimus auctoritate et auspiciis Guilelmi imperatoris Germanici, Borussorum regis potentissimi, justissimi, clementissimi, et ex decreto facultatis medico ego doctor, medicinæ professor publicus ordinarius facultatis medicae, hoc tempore decanus, te doctorum medicinæ et chirurgiae creo, creatum renuntio renuntiarum proclamo.

"Absolutis absolvendis, ascendas in cathedram superiorem, quae est doctorum."

And really, the candidate now, guided by the rector's hand, leaves the lower podium and climbs another higher one, "quae est doctorum."

There he receives from the hands of the rector the diploma in a scarlet-covered box, whereby the rector adds these solemn words:

"Salve, vir doctissime, doctor dignissime, gratulor tibi honores in te collatos; trado tibi diploma facultatis sigillo medicae obsignatum. Munus quod auspicatus es bene geras et feliciter peragas. Vale!"

Whereupon the candidate, moved to the depths of his soul, answers:

"Gratias ago tibi, decane spectatissime, ornatissime, quod summos qui sunt in medicina et chirurgia honores in me transtulisti: gratias ago vobis amicissimi, qui mihi tam fortiter quam sagaciter opposuistis! Gratias vobis qui honoris causa adfuistis! Vale! Valete!"

Dr. Van Noppen,
Niles.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

OFFICE OF THE SECRETARY, 103 DEARBORN AVE.

CHICAGO, January 3, 1903.

DEAR DOCTOR:

Since the formation of the American Medical Association the fundamental principle has been that membership should depend on membership in an affiliated state or territorial association, or in one of its subordinate branches, of the state or territory in which the individual resides. In the reorganization adopted at St. Paul, in 1901, this principle was emphasized, but not changed. For many years, however, this has not been enforced for the reason that no system of reporting or verification of membership under the old conditions was possible. The result has been that an individual might become a member of the A. M. A. while a member in good standing in an affiliated body, but later withdraw from the latter, or be dropped or expelled, and yet still remain a member of the A. M. A. Hence, there are on the list of members of the latter some from every state and territory who do not belong to their state or territorial society, or any of its branches. The plan of organization now going into effect will prevent this anomalous condition in the future.

Meanwhile it becomes necessary to ask each one who is on the membership list of the American Medical Association and who is not a member of his State Association, or one of its subordinate branches, to unite with such by March 1, 1903. This is in accordance with the following resolutions adopted by the House of Delegates of the American Medical Association, June 16, 1902:

Resolved: 1. That the Secretary of the Association shall complete the verification of the list of members on the plan already begun, and obtain, so far as possible, correct information from the members themselves and from other sources as to the qualification of every person who now claims membership in this Association.

2. That all those who now claim membership and who are not eligible according to our laws shall be notified by the Secretary of such fact, and that they must furnish satisfactory evidence of their qualification for membership as required by our laws on or before Jan. 1, 1903.

3. That not later than March 1, 1903 the Secretary is directed, after notification, to drop from the roll of members all who are not eligible to membership in this Association.

4. That the word "local'" in line 9, Section 3, Chapter I, of the By-laws, shall beconstrued, in this connection, to apply to the state organization, or one of its recognized branches of the state in which the person holds his legal residence.

5. That a member of this Association removing from one county or state to another may continue to hold his membership in this Association for a period not to exceed two years, without joining an affiliated society in his new place of residence; provided, however, that during this time he retains his original membership in the county or state society from which he removed.

Section 3, Chapter 1, of the By-laws of the A. M. A., referred to in the resolution, is as follows:

Section 3.—No individual who shall be under sentence of expulsion or suspension from an affiliated society (whether a directly affiliated state or territorial society or an indirectly affiliated local society) of which he may have been a member, or whose name shall have been dropped from the rolls of the same, shall be received as a member or shall be allowed to continue as a member of this Association, until he shall have been relieved from said sentence or disability by such society; nor shall any person not a member of his local affiliated medical society, provided there be such a one, be eligible to membership or be allowed to continue as a member in the American Medical Association.

This circular letter is sent to each member of the A. M. A. whose name is not found on the membership list of his state or territorial association, or any of its branches, and is an official notification, in accordance with the above resolution, that such member's name will be stricken from the roll of members of the A. M. A., March 1, 1903, unless by that time he shows that he is entitled to such membership.

GEORGE H. SIMMONS,

Secretary American Medical Association.

PRELIMINARY ANNOUNCEMENT OF

The Next Annual Meeting of the State Society

The attention of the members of the Michigan State Medical Society is again respectfully invited to the Annual Meeting of the Society to be held at Detroit, Thursday and Friday, June 11th and 12th, 1903.

Voluntary papers are hereby solicited, and each member who contributes is requested to send the title of his paper to the Secretary of the Section before which he desires to present it. Each paper is limited to fifteen minutes and the title is to be sent as early as possible, **not later than April 1st,** to the respective Secretary of Section.

DR. WILLIS S. ANDERSON, 912 Chamber of Commerce, Detroit,
Secretary of Section on General Medicine.

DR. W. A. SPITZLEY, 270 Woodward Avenue, Detroit,
Secretary of Section on Surgery, Ophthalmology and Otology.

DR. CASPER K. LA HUIS, Kalamazoo,
Secretary of Section on Obstetrics and Gynecology.

It is requested that an abstract of each paper, *not to exceed one hundred words,* be furnished the Secretary of the respective Sections by **May 1st.**

No paper, the title to which has not been sent in by **April 1st,** can be presented at the Annual Meeting in June.

DETROIT, MICH., March 2, 1903. **A. P. BIDDLE, Secretary.**